PHILIPS

# PageWriter TC Cardiograph
# Network Configuration Guide

## Notice

## About This Edition

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For further information on available training on the use of this product, please contact a Philips Medical Systems representative, or the manufacturer.

### Medical Device Directive

The PageWriter TC70, TC50 and TC30 cardiographs comply with the requirements of the Medical Device Directive 93/42/EEC and carries the CE 0123 mark accordingly.

Authorized EU-representative:

Philips Medizin Systeme Böblingen GmbH
Hewlett Packard Str. 2
71034 Böblingen
Germany

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# About the Network Configuration Guide

This *PageWriter TC Cardiograph Network Configuration Guide* is intended to assist with configuring network or modem connectivity between Philips PageWriter TC cardiographs and external order and ECG management systems.

Before attempting to operate the products described in this document, read this *Network Configuration Guide,* and the applicable *PageWriter TC Cardiograph Instructions for Use*. Note and strictly observe all Warning and Cautions as described in this document, and in the *PageWriter TC Cardiograph Instructions for Use*.

Pay special attention to all warning and caution statements included in this document.

**WARNING** **Warning statements describe conditions or actions that may result in a potentially serious outcome, adverse event, or a safety hazard. Failure to follow a Warning may result in death or serious injury to the user or to the patient.**

**CAUTION** Caution statements describe when special care is necessary for the safe and effective use of the product. Failure to follow a caution may result in minor to moderate personal injury or damage to the product or other property, a remote risk of more serious injury, or may cause environmental pollution.

**NOTE** Notes contain additional important information about a topic.

**TIP** A Tip contains suggested information on using a particular feature.

Menu items and button names appear in bold no-serif font. Example: Touch the **Setup** button.

# 1

# Overview of Workflow Options

The PageWriter TC cardiographs can communicate over a wireless LAN, Ethernet LAN, or modem with a Philips TraceMaster ECG Management System for an integrated order and ECG management workflow solution. Enabling cardiograph connectivity with a TraceMaster server allows for the direct downloading of pending patient orders to the cardiograph, and for the subsequent uploading back to TraceMaster of the completed orders and associated ECGs for reconciliation, review, and processing. With TraceMaster, you can also enable the Last ECG and interactive query features on the cardiograph so that you can download ECGs directly from a TraceMaster server, allowing for the on-screen review, printing, and comparison of the most recent patient ECG directly at the cardiograph. The cardiograph can also be configured to transmit completed ECGs to any third party (non-Philips) ECG management system using a LAN, wireless LAN, or modem connection, and can be configured to transmit completed ECGs as a fax transmission using the modem. The cardiograph also supports the transmission of completed ECGs as a PDF file directly to any remote networked PC or server.

For more information on purchasing any of the optional cardiograph features described in this document (LAN, wireless LAN, modem/fax, orders), consult your Philips sales representative, or your local dealer or distributor.

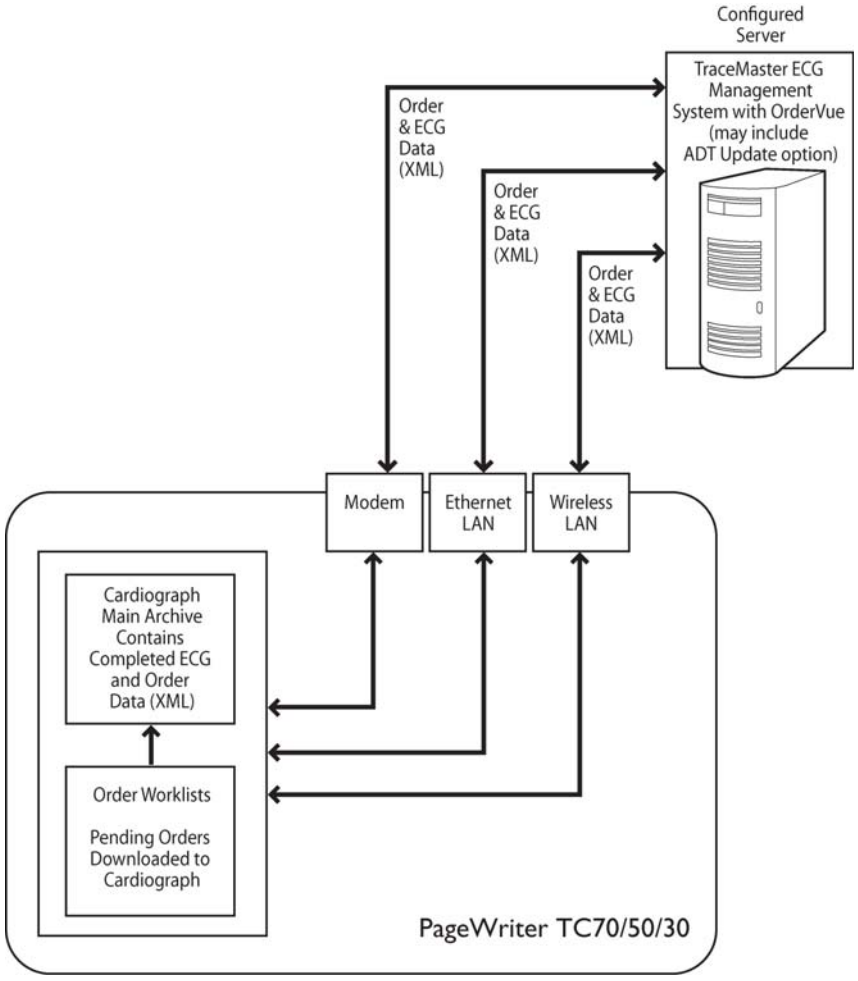
The following sections provide an overview of the supported ECG, order, fax, and PDF workflow solutions available on the cardiograph, with references to the applicable configuration instructions.

## TraceMaster with OrderVue Workflow

The cardiograph can be configured to communicate with a TraceMaster ECG Management System over a LAN, wireless LAN, or modem connection for a comprehensive bidirectional orders, and ECG workflow management solution. In this workflow option, the TraceMaster ECG Management System server receives orders and, as an option, ADT patient demographic updates to existing orders, directly from a HIS in HL7 format. The system then converts the order into an XML-based order format compatible with the PageWriter TC cardiograph. Orders are then selected from the cardiograph Worklist at the beginning of each patient session. Completed ECGs are then transferred back to the TraceMaster server for review and reconciliation, with billing information transferred directly back to the HIS. For information on configuring connectivity with a TraceMaster ECG Management System with the OrderVue order handling option, see “Configuring TraceMaster ECG Management System Settings” on page 3-1.

**NOTE** The ADT option available with OrderVue *only* provides for ADT updates to an existing HL7 patient order received from the HIS.

**Figure 1-1 TraceMaster with OrderVue Workflow**

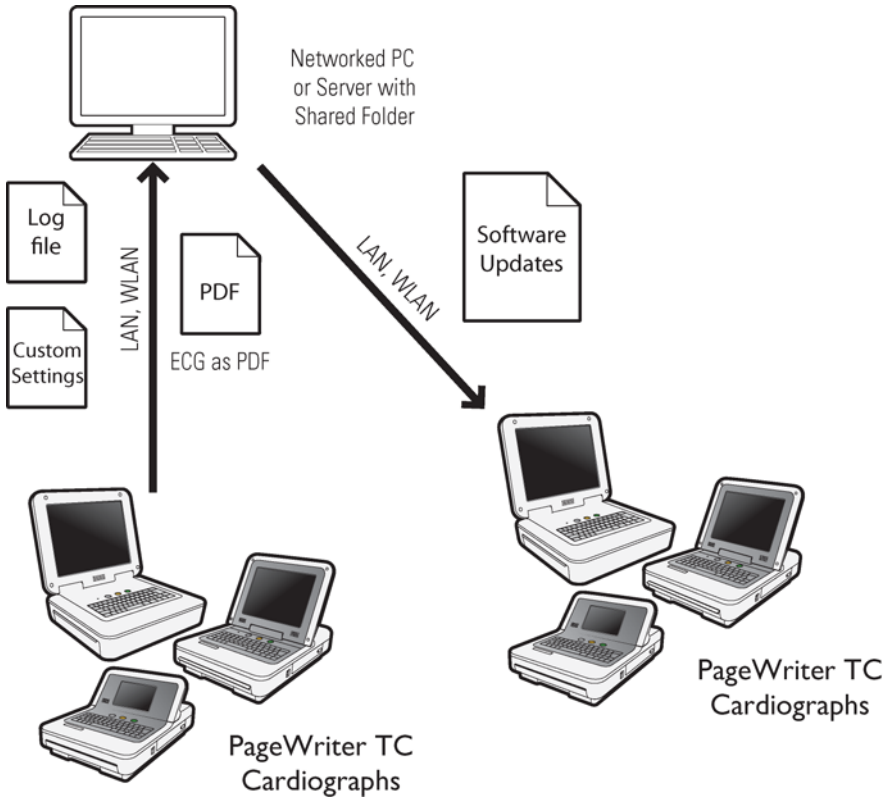

Configured Server
TraceMaster ECG Management System with OrderVue (may include ADT Update option)
Order & ECG Data (XML)
Order & ECG Data (XML)
Order & ECG Data (XML)
Modem
Ethernet LAN
Wireless LAN
Cardiograph Main Archive Contains Completed ECG and Order Data (XML)
Order Worklists
Pending Orders Downloaded to Cardiograph
PageWriter TC70/50/30

# ECG PDF Export and Remote PC Workflow

The cardiograph can be configured to export ECGs as PDF files to any networked remote PC or server using a LAN, or wireless LAN connection. The ECG PDF files may then be viewed in PDF viewer software directly at the remote receiving PC or server. The remote PC or server can also be configured to support the receipt of custom configuration files, or System Log files from the cardiograph, and the remote server can transmit custom configuration files or software update files directly to a cardiographs, accelerating the configuration and software update processes. For more information on configuring PDF Export or Remote PC settings, see “Configuring PDF Export and Remote PC Settings,” on page 5-1.

**NOTE** The ECG PDF Export and Remote PC workflow does not support the use of modem transmission.

**Figure 1-2 ECG PDF Export and Remote PC Workflow**




# ECG Fax Workflow

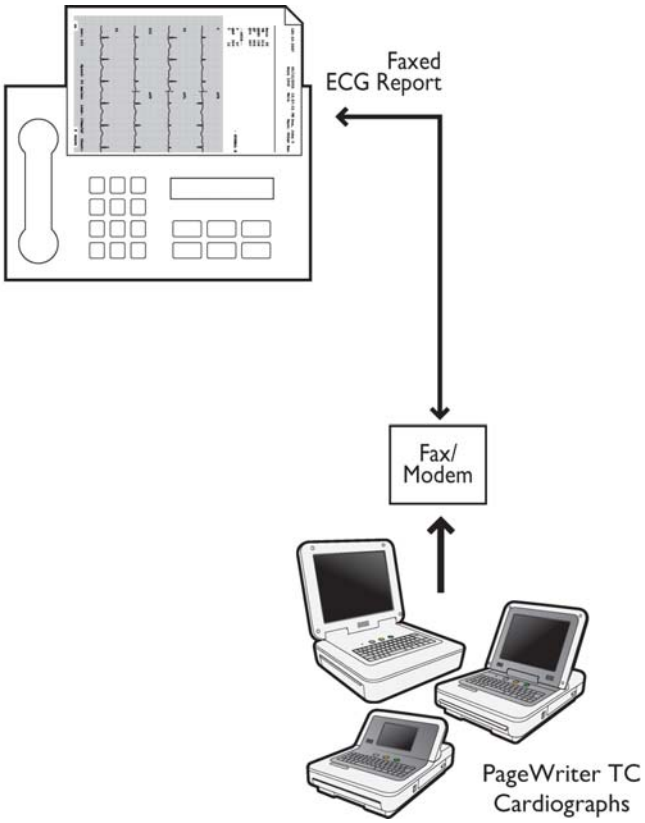
The cardiograph can be configured to fax completed ECGs to any remote receiving fax machine using the optional modem. For more information on configuring the cardiograph modem to fax ECGs, see “Configuring FAX Settings” on page 7-1.

## Special Notes About Fax Transmission

**CAUTION** No guarantee is made as to the suitability of a faxed ECG for any particular purpose, due to the variability inherent in fax technology.

**CAUTION** Faxed ECGs should only be sent to secure recipient fax machines.

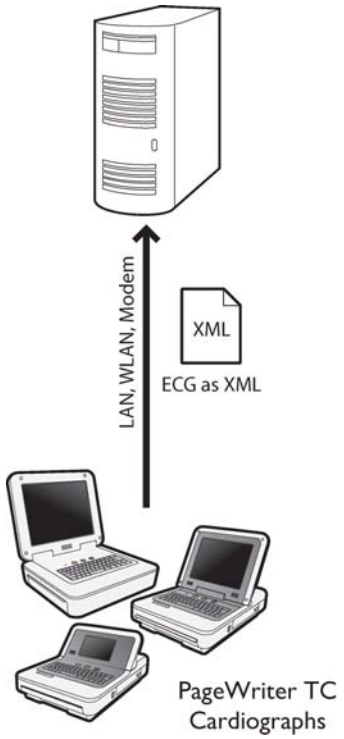
**Figure 1-3 ECG Fax Transmission Workflow**




# Third Party ECG Management System Workflow

The cardiograph can be configured to transmit completed ECGs in a specified Philips XML format to any remote receiving server using a modem, LAN, or wireless LAN connection. For information on the Philips ECG XML Schema, see “Philips ECG XML Information” on page 1-7. For information on configuring cardiograph connectivity with a third party (non-Philips) ECG management system, see “Configuring Third Party ECG Management System Settings” on page 6-1.

**Figure 1-4 PageWriter TC Cardiograph to Third Party (non-Philips) ECG Management System Transmission Workflow**




# Using the Cardiograph Setup Screens

All cardiograph networking and remote server settings, including TraceMaster or third party ECG management system settings, are accessed through the Configuration Setup and Service Utilities Menu. This menu is organized as described in Table 1-1. Touch **Setup** on the toolbar (bottom of screen) to open the menu, and then touch a button to make a selection from the menu. Each menu selection is then organized into a series of buttons and tabs that appear at the top of the screen. Touch a button or tab to select it. A selected button or tab appears highlighted in blue.

**Table 1-1 Configuration Setup and Service Utilites Main Menu Options**

| Menu Selection | Features | For details, see ... |
|---|---|---|
| **Configure Cardiograph Default Settings** | Exams, Patient ID, Algorithm/Pacing, Institution, Password, Filter, Locale, Power Save/System, Save/Load Settings | Use the Help system on the Setup screens for assistance in specifying these clinical default settings. For information on using the Help system, see "Using Setup Help" on page 1-9. |

**Table 1-1 Configuration Setup and Service Utilites Main Menu Options** *(continued)*

| Menu Selection | Features | For details, see ... |
|---|---|---|
| **Configure ECG Network Settings, LAN/WLAN** | **Wire Network**<br>■ Use this tab to define Ethernet connection and modem (available as an option) settings for the cardiograph. | "Configuring Wired LAN (Ethernet) Settings" on page 2-6. |
| | **Wireless Network** (available as an option)<br>■ Use this tab to define wireless connection settings for the cardiograph, including specifying settings in the Summit WLAN Adapter utility. | "Configuring Wireless LAN Settings" on page 2-12. |
| **Configure ECG Network Settings, ECG Mgmt Systems** | **Create TraceMaster Connection**<br>■ Use this tab to configure a new TraceMaster, or third party (non-Philips) server connection, including compression and encryption options.<br>■ Use this tab to configure remote PC or server settings for the purposes of transmitting PDF files, Log files, and custom configuration files from the cardiograph to a remote receiving PC or server, and for transmitting custom configuration files and software updates from the networked PC or server to the cardiograph.<br>**Edit/Delete TraceMaster Connection**<br>■ Use this tab to change or to delete existing TraceMaster, third party, or PDF export server settings, specify a default server connection, enable Time Sync feature, or to manually change the date and time. | ■ "Configuring a TraceMaster Connection" on page 3-9.<br>■ "Configuring Third Party ECG Management System Settings" on page 6-1.<br>■ "Configuring PDF Export and Remote PC Settings" on page 5-1. |
| | **OrderVue Settings**<br>**Create OrderVue Inbox**<br>■ Use this tab to create new OrderVue Worklists for direct order download to the cardiograph.<br>**Edit/Delete OrderVue Inbox**<br>■ Use this tab to change or to delete an existing OrderVue Worklist. | "Configuring OrderVue Settings" on page 4-1. |

**Table 1-1 Configuration Setup and Service Utilites Main Menu Options** *(continued)*

| Menu Selection | Features | For details, see ... |
|---|---|---|
| **Configure ECG Network Settings, ECG Mgmt Systems** | **ADT Settings**<br>**Create ADT Inbox**<br>**Notes:** this feature is not supported on PageWriter TC cardiographs with installed software version A.04.04 and lower.<br>This ADT option is *not* used with OrderVue with the ADT option installed. If using OrderVue with the ADT option, you configure an OrderVue (not ADT) Worklist. | "Configuring OrderVue Settings" on page 4-1. |
| **Configure ECG Network Settings, FAX** | **Note**: The Fax feature is only available with the optional modem.<br>**Create a Fax Recipient**<br>■ Use this tab to create a new fax recipient, including recipient name, number, and a fax cover sheet.<br>**Edit/Delete Fax Recipient**<br>■ Use this tab to change or to delete an existing fax entry. | "Configuring FAX Settings" on page 7-1. |
| **Service Utilities** | Provides an overview of all cardiograph operating information, and includes a set of diagnostic tests and utilities that can be used for troubleshooting purposes. Displays system error and event log in real time for immediate review. | *PageWriter TC Cardiograph Service Manual*, available for download from the Philips InCenter site. For information, see "Using the Philips InCenter Site" on page 1-8. |

# Philips ECG XML Information

The PageWriter TC cardiographs export ECG data in XML (Extensible Markup Language) format. There are three available XML schema versions on the cardiograph: version 1.03, version 1.04, and version 1.04.01. Version 1.03 exports ECG data in 12-lead format only, version 1.04 exports ECG data for up to 16 leads, and version 1.04.01 exports ECG data for up to 16 leads and includes full interpretation from the Philips DXL Algorithm.

Information regarding the Philips ECG XML schema can be obtained directly from Philips Medical Systems by sending an email request to: **ecg@philips.com**. Please include your name, facility, and the serial number of your PageWriter TC cardiograph in the email request.

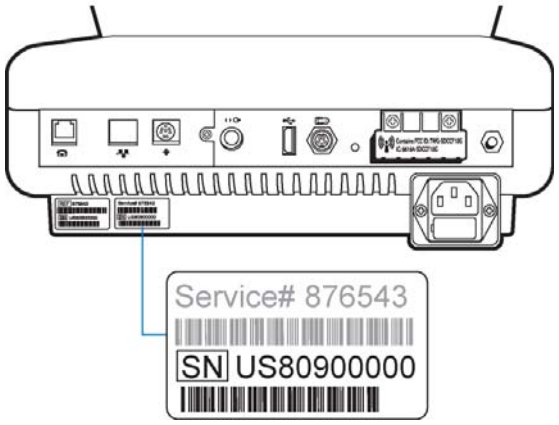
# Using the Philips InCenter Site

The Philips InCenter site provides frequent updates to all Philips Cardiac Systems product documentation and product software, including the PageWriter TC cardiographs.

The Philips InCenter site requires an active registration and password. To register, go to the InCenter site at: incenter.medical.philips.com and click on the **Need help?** link on the main page (located under the user login and password fields). On the following page, under **Software Updates** (lower right corner of page), click the **Click here for account registration** link. The Cardiac Systems InCenter Registration page appears. Complete all of the information fields on the page to receive a login and password for the InCenter site.

Registration for the InCenter site requires the serial number of at least one PageWriter TC cardiograph in active use at your facility. The serial number is found on the product identification label, located next to the text **SN**. The product identification label is located on the rear panel of the cardiograph, see Figure 1-5 on page 1-8.

**Figure 1-5 Cardiograph Product Identification Label (rear view)**




## About Adobe Acrobat Versions

Adobe Acrobat Reader version 9.0 must be installed on the PC that is used to access the Philips InCenter site. Previous versions of Acrobat Reader are not compatible with the Philips InCenter site, and attempting to access InCenter with a previous version of Acrobat Reader will result in error messages when opening documents. Uninstall all previous versions of Acrobat Reader, and then proceed for a free install of Acrobat Reader 9.0 at: www.adobe.com.

Any version of Adobe Acrobat Professional or Acrobat Elements are also not compatible with the Philips InCenter site, and error messages will appear when opening documents with these applications. Acrobat Reader 9.0 must be installed in addition to Acrobat Professional or Acrobat Elements.

Follow this procedure when accessing documents on the Philips InCenter site.

**To access documents on the Philips InCenter site:**

1. Exit Acrobat Professional or Acrobat Elements (if open).
2. Start Acrobat Reader 9.0.

3 Open Internet Explorer, and go to the Philips InCenter site. Keep Acrobat Reader 9.0 open the entire time while accessing the InCenter site.

# Using Setup Help

Each Setup screen within the cardiograph software application provides Help that describes the currently selected option or field. Use the Help when configuring cardiograph settings, or to learn more about a specific feature or item.

When a Setup screen is opened, Help displays in a blue *Information box* that appears on the bottom of the screen. Touch a tab, or touch the name of any field or option displayed on the screen to display Help for that specific item.

**To view help for a tab or field:**

- Touch a tab or touch the name of the field or option so that it is highlighted in blue. Help for the selected item displays in the blue Information box at the bottom of the screen (see Figure 1-6 and Figure 1-7 on page 1-10).

**Figure 1-6 PageWriter TC70 or TC50 Cardiograph Information Box on a Setup screen**

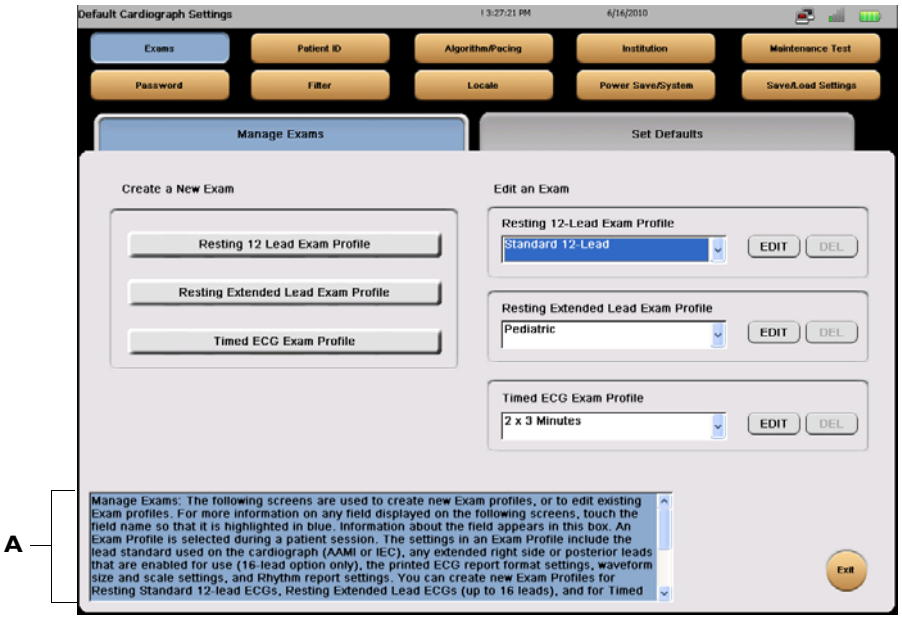
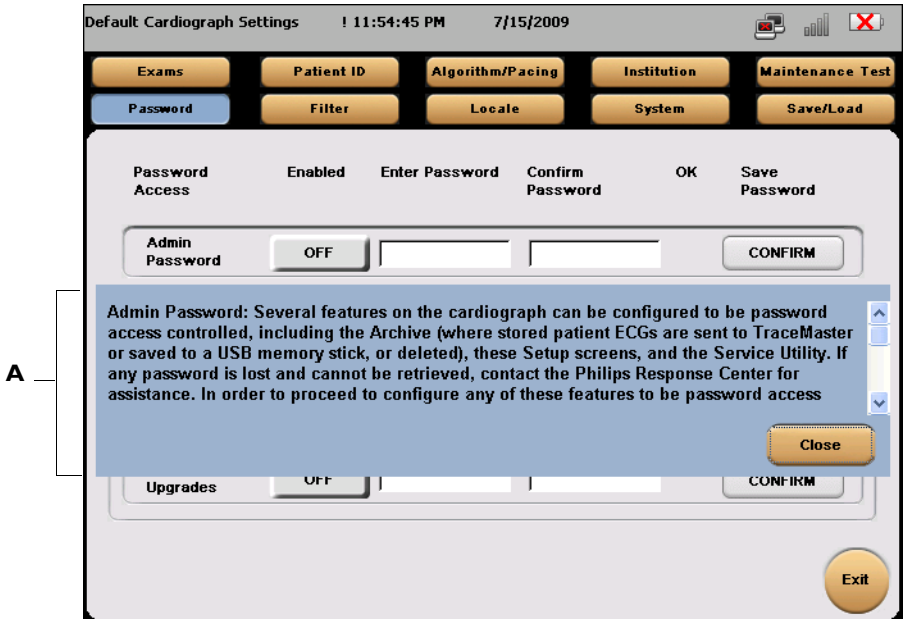

Default Cardiograph Settings
Exams
Patient ID
Algorithm/Pacing
Institution
Maintenance Test
Password
Filter
Locale
Power Save/System
Save/Load Settings
Manage Exams
Set Defaults
Create a New Exam
Resting 12 Lead Exam Profile
Resting Extended Lead Exam Profile
Timed ECG Exam Profile
Edit an Exam
Resting 12-Lead Exam Profile
Standard 12-Lead
EDIT
DEL
Resting Extended Lead Exam Profile
Pediatric
EDIT
DEL
Timed ECG Exam Profile
2 x 3 Minutes
EDIT
DEL
Manage Exams: The following screens are used to create new Exam profiles, or to edit existing Exam profiles. For more information on any field displayed on the following screens, touch the field name so that it is highlighted in blue. Information about the field appears in this box. An Exam Profile is selected during a patient session. The settings in an Exam Profile include the lead standard used on the cardiograph (AAMI or IEC), any extended right side or posterior leads that are enabled for use (16-lead option only), the printed ECG report format settings, waveform size and scale settings, and Rhythm report settings. You can create new Exam Profiles for Resting Standard 12-lead ECGs, Resting Extended Lead ECGs (up to 16 leads), and for Timed
Exit
A

**Figure 1-7 PageWriter TC30 Cardiograph Information Box on a Setup screen**




**A** Information Box

# Contacting a Philips Response Center

The Philips Response Center can assist with product troubleshooting and provide technical expertise to help with any issue with the PageWriter TC cardiographs or any of its accessories.

For more information on the Philips Response Center go to:

www.medical.philips.com/main/services/response_center

## North America Response Centers

| Country | Telephone Number |
|---|---|
| Canada | (800) 323 2280 |
| Mexico | 01 800 710 8128 |
| Puerto Rico | 1 787 754 6811 |
| United States | (800) 722 9377 |

## South America Response Centers

| Country | Telephone Number |
|---|---|
| Argentina | 54 11 4546 7698 |
| Brazil | 0800 701 7789 |

## South America Response Centers

| Country | Telephone Number |
|---|---|
| Chile | 0800 22 3003 |
| Columbia | 01 8000 11 10 10 |
| Peru | 51 1 620 6440 |

## Europe Response Centers

| Country | Telephone Number |
|---|---|
| United Kingdom | 44 0870 532 9741<br>Fax: 44 01737 23 0550 |
| Austria | 43 1 60101 820 |
| Belgium | 32 2 525 7102 (French)<br>32 2 525 7103 (Flemish) |
| Czech Republic<br>MCR Response Center (located in The Netherlands) | 31 40 2781619 |
| Denmark | 45 80 30 30 35 |
| Finland | 358 615 80 400 |
| France | 0 810 835 624 |
| Germany | 0180 5 47 5000 |
| Greece<br>MCR Response Center (located in The Netherlands) | 31 40 2781619 |
| Hungary<br>MCR Response Center (located in The Netherlands) | 31 40 2781619 |
| Italy | 0800 232100 |
| Netherlands | 31 40 27 211 27 |
| Norway | 47 800 84 080 |

## Europe Response Centers

| Country | Telephone Number |
|---|---|
| Poland<br>MCR Response Center (located in The Netherlands) | 31 40 2781619 |
| Rumania<br>MCR Response Center (located in The Netherlands) | 31 40 2781619 |
| Russia<br>MCR Response Center (located in The Netherlands) | 31 40 2781619 |
| Slovak Republic<br>MCR Response Center (located in The Netherlands) | 31 40 2781619 |
| Spain | 34 90 230 4050 |
| Sweden | 46 200 81 00 10 |
| Switzerland | 0800 80 3000 (German)<br>0800 80 3001 (French) |

## Asia Response Centers

| Country | Telephone Number |
|---|---|
| Australia | 1800 251 400 |
| China | 800 810 0038 |
| Hong Kong | 852 2876 7578 |
| India | 1600 112 444 |
| Indonesia | 62 21 7910040, ext 8610 |
| Japan | 81 (0)120 095 205 |
| Korea | 82 (0)2 3445 9010 |
| Malaysia | 1800 886 188 |
| New Zealand | 0800 251 400 |
| Philippines | 63 2 8162617 ext. 875 |

## Asia Response Centers

| Country | Telephone Number |
|---|---|
| Singapore | 1800 Philips |
| Taiwan | 0800 005 616 |
| Thailand | 66 (0)2 614 3569 |

## Africa and Middle East

| Country | Telephone Number |
|---|---|
| All countries<br>MCR Response Center (located in The Netherlands) | 31 40 2781619 |

2

# Configuring Network Connectivity

## About Network Settings

The PageWriter TC cardiographs communicate with various external servers using a wired or wireless network connection, or a modem connection. In the network configuration settings available on the cardiograph, all TCP/IP settings can be specified based on the needs of your specific clinical environment.

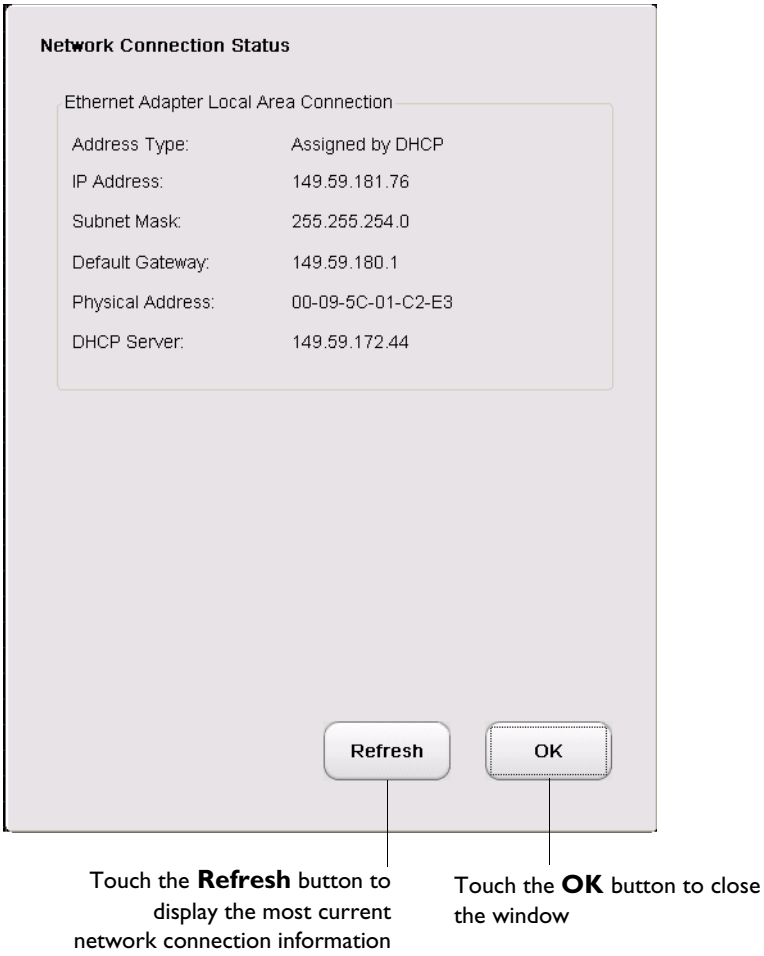
Both automatic IP addressing via DHCP (Dynamic Host Configuration Protocol) and fixed IP address settings are available. The network settings on the cardiograph support TCP/IP protocol using a dynamic IP address or a static IP address, and support a DNS or WINS server.

Ethernet data transmission settings can be set to Auto Negotiation, where the system automatically configures the correct settings for Ethernet speed and mode (half or full duplex), or can be configured with fixed settings, if required.

### Network Connection Status Window

Tap the LAN icon or the wireless LAN icon on the Status Bar (top of screen) to view more detailed information about a connection. The Network Connection Status window appears.

**Figure 2-1 The Network Connection Status window**


Network Connection Status
Ethernet Adapter Local Area Connection
Address Type: Assigned by DHCP
IP Address: 149.59.181.76
Subnet Mask: 255.255.254.0
Default Gateway: 149.59.180.1
Physical Address: 00-09-5C-01-C2-E3
DHCP Server: 149.59.172.44
Refresh
OK
Touch the Refresh button to display the most current network connection information
Touch the OK button to close the window

## About the Refresh Button

The **Refresh** button available on the Network Connection Status window (Figure 2-1 on page 2-2) or on the Wire Network (LAN) or Wireless Network Setup screens, will (when touched) obtain and display the most recently acquired IP address for the cardiograph. Please note that this button does not provide a *release and renew* feature that is intended to acquire a new IP address for the cardiograph. To obtain a new IP address for the cardiograph, you must shut down and restart the cardiograph as described in the following procedure.

## Obtaining a New IP Address for the Cardiograph

**To obtain a new IP address for the cardiograph:**

1 Ensure that any active patient data or ECG data has been saved.

NOTE When the cardiograph is shut down, any unsaved patient or ECG data is deleted.

2 Press and hold the On/Standby button on the cardiograph for two seconds. The cardiograph shuts down.

3 Press the On/Standby button again to restart the cardiograph.

4 From the Main screen, touch the **Setup** button on the toolbar. The Setup main menu appears.

5 On the menu, touch the **Configure ECG Network Settings** button.

6 The **Wire Network** tab is displayed, or to view the IP address set for a wireless connection, touch the **Wireless Network** tab. Touch the **Refresh** button next to the **Device Address** field. The new IP address is displayed in the **Device Address** field.

## Obtaining the IP Address Automatically (Using DHCP)

Obtain IP Address Automatically

Touch the **Obtain IP Address Automatically** button (on the **Wire Network** or the **Wireless Network** tab) to retrieve an IP address dynamically from the network. The LAN records the unique MAC (Media Access Control) address of the cardiograph and provides a temporary DHCP IP address. The IP address is obtained each time that the cardiograph is restarted, or is returned to active use after being shut down.

## About Auto Negotiation

When obtaining the IP address from the local area network (LAN) dynamically using DHCP, you can specify the Ethernet Adapter settings. The settings are set to Auto Negotiation, where the system automatically configures the correct settings for Ethernet speed and mode (half or full duplex).

**NOTE** If Auto-Negotiation fails, you may need to lock a specific switch or router port to a fixed setting (for example, 100BaseT Full Duplex) to obtain a connection. For details, see "Configuring Manual Ethernet Settings" on page 2-8.

## Specifying IP Address (Fixed IP)

Touch the **Specify IP Address** button to define a fixed IP address for the cardiograph. Using a fixed IP address allows the cardiograph to be recognized from multiple locations while connected to the LAN, and does not require that the IP be reset in order to be recognized.

Using fixed IP addresses also avoids the problem of having multiple IP addresses assigned to a single cardiograph.

## Checking the Cardiograph IP Address

The **Device Address** field on the **Wire Network** and **Wireless Network** tabs displays the current IP address for the cardiograph for each connection type.

If using a dynamic IP address using DHCP (by selecting the **Obtain IP Address Automatically** option), the IP address is automatically refreshed each time that the cardiograph is fully restarted, or is returned to active use after being shut down.

**To view the IP address for the cardiograph:**

1 On the Main screen, touch **Setup** on the toolbar. The Setup main menu appears.

2 On the menu, touch the **Configure ECG Network Settings** button. The **Wire Network** tab is displayed.

The IP address for the Ethernet (wired) connection is displayed in the **Device Address** field. Touch the **Refresh** button to view the most current IP address for the connection.

3 To view the IP address set for a wireless connection, touch the **Wireless Network** tab.

The IP address for the wireless connection is displayed in the **Device Address** field. Touch the **Refresh** button to view the most current IP address for the connection.

For information on manually resetting the IP address, see “Obtaining a New IP Address for the Cardiograph” on page 2-2.

## Configuring Multiple Cardiographs

When configuring multiple cardiographs with the same networking, TraceMaster, or OrderVue settings, you can save all settings to a USB memory stick as a *Network Settings* file, and then upload the settings to additional PageWriter TC cardiographs.

**NOTES** Wireless LAN card settings specified in the Summit WLAN Adapter are saved with the Network Settings file.

You can load the same Network Settings file on all models of the PageWriter TC cardiograph.

# Configuring Cardiograph Network Settings

If assistance is required with any of the settings described in this section, please consult your network administrator.

The Network settings are contained on two tabs: **Wire Network** and **Wireless Network**. You specify connection settings using the appropriate tab. The selected tab is highlighted in blue.

**TIP** The blue information box at the bottom of each screen provides help information for all settings. Touch the name of a setting to display help for that item. The selected item is highlighted in blue.

**Figure 2-2 Wire Network tab**

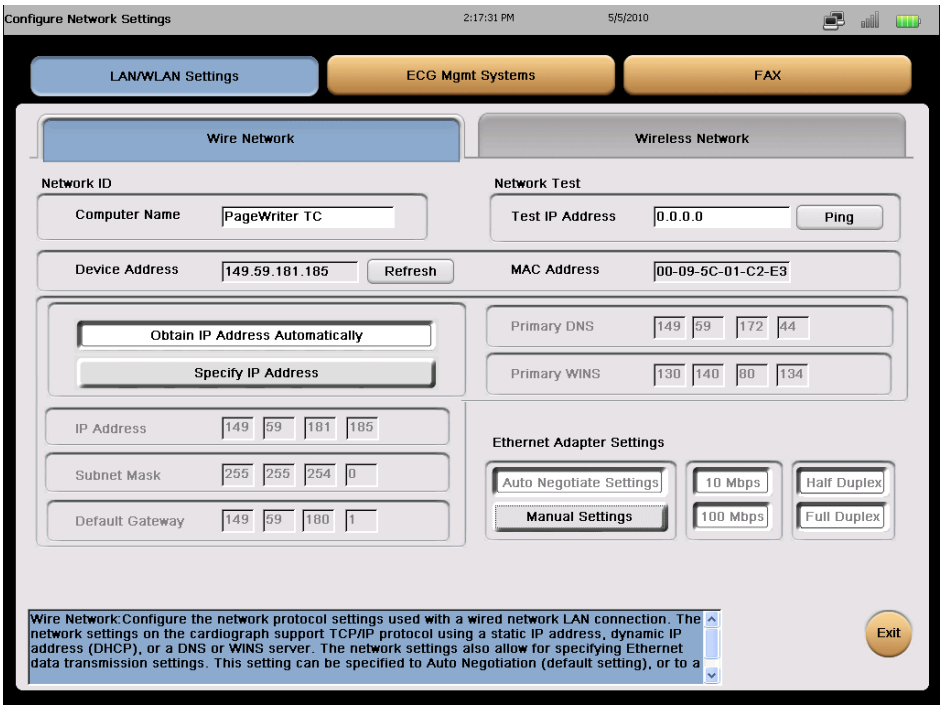
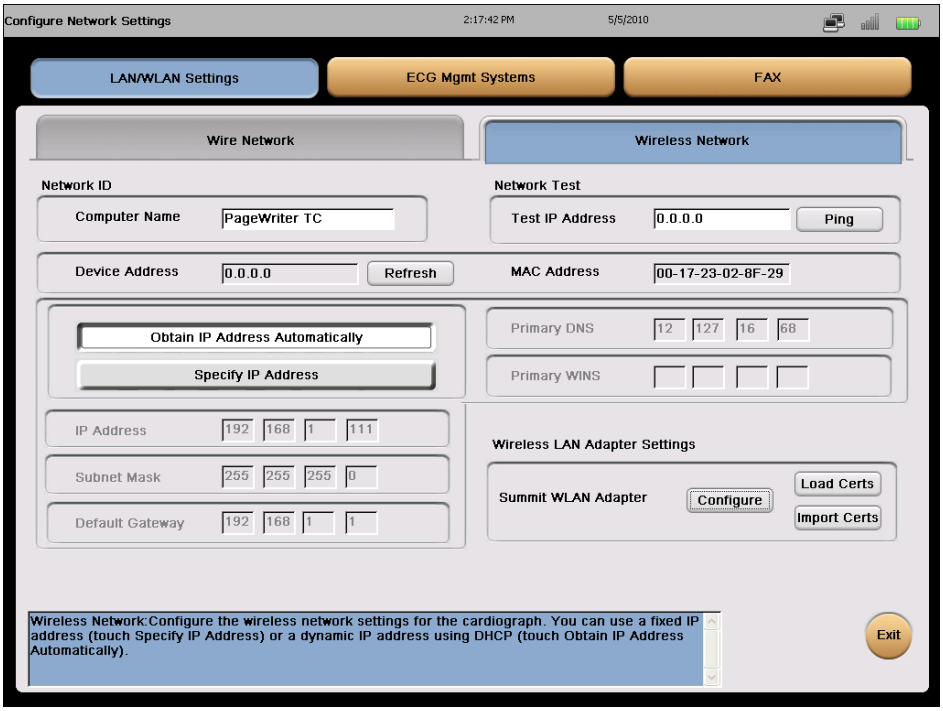



**Figure 2-3 Wireless Network tab**




For details on configuring network settings, see:

- “Configuring Wired LAN (Ethernet) Settings” on page 2-6.
- “Configuring Wireless LAN Settings” on page 2-12.

# Configuring Wired LAN (Ethernet) Settings

On the network configuration screen, you can define how the IP address is set (dynamic or fixed), specify the subnet mask, default gateway, and primary DNS, and/or primary WINS.

**To configure Wired LAN (Ethernet) settings:**

1 On the toolbar, touch **Setup**. The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **Configure ECG Network Settings**. The **Wire Network** tab appears.

3 Touch the appropriate IP Address button:

- To use a dynamic IP address that is retrieved automatically each time the cardiograph is reset, touch **Obtain IP Address Automatically**. This settings is enabled by default. Proceed to step **4**.
- If using a static IP Address, please proceed to step **5**.

Depending on which selection you make, different options are enabled on the tab.

4 If using a dynamic IP address, specify the following settings:

| Setting | Description |
|---|---|
| Computer Name | Touch the text-entry field and type a unique name to identify the specific cardiograph on the network (up to sixteen letters or numbers).<br><br>**NOTES**<br>■ The *Computer Name* field cannot be left blank and cannot contain any special characters or spaces. This field can only contain the letters A-Z or the numerical digits 0-9.<br>■ If this field is left blank, **PageWriter TC** will appear in this field by default. |
| IP Address | The LAN automatically provides a dynamic IP address to the cardiograph. The LAN records the unique MAC (Media Access Control) address of the cardiograph and provides a temporary DHCP IP address.<br><br>To manually retrieve a new IP address from the network, shut down the cardiograph (press and hold the On/Standby button) ( ) and then press the On/Standby button ( ) again to restart the cardiograph. This resets the temporary DHCP IP address. |

The Ethernet Adapter settings are always set to **Auto Negotiation** (page 2-3).

Proceed to step **6**.

**5** If specifying a fixed IP address, specify the following settings:

| Setting | Description |
|---|---|
| Computer Name | Touch the text-entry field and type a unique name to identify the specific cardiograph on the network (up to sixteen letters or numbers). This field is required, and cannot be left blank.<br><br>**NOTES**<br>■ The *Computer Name* field cannot be left blank and cannot contain any special characters or spaces. This field can only contain the letters A-Z or the numerical digits 0-9.<br>■ If this field is left blank, **PageWriter TC** will appear in this field by default. |

| Setting | Description |
|---|---|
| IP Address | Touch the first text entry field and, using the *Tab* key to move between fields, type the IP address for this cardiograph. No separating period (.) is required. |
| Subnet Mask | Touch the first text entry field and, using the *Tab* key to move between fields, type the (optional) subnet mask address. No separating period (.) is required. |
| Default Gateway | Touch the first text entry field and, using the *Tab* key to move between fields, type the (optional) default gateway. No separating period (.) is required. |
| Primary DNS | Touch the first text entry field and, using the *Tab* key to move between fields, type the (optional) primary DNS address. No separating period (.) is required. |
| Primary WINS | Touch the first text entry field and, using the *Tab* key to move between fields, type the (optional) primary WINS address. No separating period (.) is required. |

**6** Touch **Exit**, then touch **Yes** when prompted to save your settings.

After saving your changes, the IP address is saved in the registry. Other configuration settings are saved in the configuration file.

## Configuring Manual Ethernet Settings

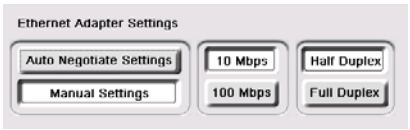
By default, the cardiograph is configured for auto-negotiation. If auto-negotiation fails, you may need to lock a specific switch or router port to a fixed setting (for example, 100BaseT Full Duplex) to obtain a connection.

You specify the settings in the Ethernet Adapter Settings section of the **Wire Network** or **Wireless Network** tabs (depending on your connection type).

**To configure manual Ethernet settings:**

**1** On the **Wire Network** or **Wireless Network** tab, touch **Manual Settings**.

The buttons for each of the settings are enabled.




**2** Touch the button(s) to select the appropriate settings. Options are 10 or 100 Mbps, Half or Full Duplex.

**NOTES** **Half Duplex** means that data can be transmitted in both directions on a signal carrier, but not at the same time. **Full Duplex** means that data can be transmitted in both directions on a signal carrier, at the same time.

**3** Save the settings by touching **Exit**.

4 When prompted to save your changes, touch **Yes**.

The cardiograph saves the settings to the registry and returns you to the Setup menu. You must now restart the cardiograph.

5 Press and hold the On/Standby button for two seconds. The cardiograph shuts down. Press the On/Standby button again to restart the cardiograph. The new settings are now applied.

## About Wireless LAN Settings

The PageWriter TC cardiographs offer wireless connectivity through cardiograph wireless LAN options D21 and D22. Both of these wireless options include the Summit Data Communications Compact Flash Card wireless adapters with Integrated Antenna (also referred to as a *radio card*). These adapters offer an integrated diversity antenna with enhanced transmit power and receiver sensitivity, and with superior delay spread and roaming capabilities, delivering dependable connectivity in almost all demanding clinical environments, including those with limited access point availability, and those with numerous and competing wireless devices.

The D21 adapter is compatible with both the 802.11b and g wireless standards, and operates in the 2.4 GHz section of the radio frequency spectrum, providing a data transmission rate of 54 megabits per second (Mbps). The D22 adapter is compatible with the 802.11a, b, and g standards, and operates dually in either the 2.5 GHz or 5 GHz section of the radio frequency spectrum. Operating in the 5 GHz range provides optimal connectivity in high use, competitive wireless environments. The PageWriter TC cardiograph software includes the Summit Client Utility (SCU), which allows you to configure all radio operation and security settings. The utility also enables you to view operating status and to troubleshoot adapter issues.

### Other Resources and Information

For additional information about the Summit adapter, see the product documentation available at the Summit web site, http://www.summitdatacom.com.

### Supported Security Options

Authentication is supported through an integrated 802.1x supplicant supporting authentication using pre-shared keys, as well as a broad range of Extensible Authentication Protocol (EAP) types, including EAP-TLS, PEAP-GTC, LEAP, PEAP-MSCHAPv2, and EAP-FAST.

**NOTE** The wireless LAN adapter does not support the EAP-TTLS authentication protocol.

Data privacy is ensured via encryption and decryption using AES (WPA2), TKIP (WPA), or WEP. A comparison of popular EAP types used with 802.1*X* authentication and the certificate requirements for the different authentication methods is included in Table 2-1.

You configure all wireless LAN security and connection options on the network configuration screens accessed through the **Setup** button on the main toolbar.

**NOTE** Some authentication methods may require that a valid authentication certificate be loaded and enabled on the cardiograph. For details on loading a certificate, see "Loading Authentication Certificates" on page 2-16.

**Table 2-1 Popular EAP types**

| Type | Credential(s) | Database(s) | Pros and Cons |
|---|---|---|---|
| LEAP | Microsoft password | Active Directory (AD) | ■ No certificates<br>■ Strong password required |
| PEAP with EAP-MSCHAP | Microsoft password | AD | ■ Native support in Windows, CE<br>■ CA certificate on every client device |
| PEAP with EAP-GTC | ■ Password<br>■ One-time password<br>■ Token | AD, NDS, LDAP, OTP database | ■ Broad range of credentials<br>■ CA certificate on every client device |
| EAP-FAST | ■ Microsoft password<br>■ Others | AD, others | ■ No certificates<br>■ Complex provisioning process<br>■ Requires PAC file to be statically or dynamically loaded on the client device |
| EAP-TLS | Client certificate | Certificate authority (CA) | ■ Very strong authentication<br>■ Native support in Windows, CE<br>■ CA, user certificates on every client device |

Table 2-2 describes the authentication options in the Summit Client Utility (SCU). The SCU offers the following security setting options.

**Table 2-2 Summit Client Utility Security Settings**

| Setting | Description | See ... |
|---|---|---|
| **Encryption** | This setting specifies the type of encryption that the wireless adapter will use, and how the encryption key will be created.<br>■ None: No encryption<br>■ Manual WEP: Wireless Equivalency Privacy (WEP) with up to four static keys that can be 40-bit, 128-bit in ASCII, or 128-bit in hex. Touch the **WEP keys/PSK** button to enter the keys.<br>■ Auto WEP: WEP with the key generated during EAP authentication<br>■ WPA-PSK: TKIP with PSK, either ASCII passphrase PSK or hex PSK. Touch the **WEP keys/PSK** button to enter the keys.<br>■ WPA-TKIP: TKIP with key generated during EAP authentication<br>■ WPA2-PSK: AES with PSK, either ASCII passphrase PSK or hex PSK. Touch the **WEP keys/PSK** button to enter the keys.<br>■ WPA2-AES: AES with key generated during EAP authentication<br>■ CCKM-TKIP: TKIP with key generated during EAP authentication and with Cisco key management protocol for fast reauthentication<br>■ CKIP Manual: WEP with up to four static keys, plus Cisco TKIP and/or Cisco MIC if configured on AP. Touch the **WEP keys/PSK** button to enter the keys.<br>■ CKIP Auto: WEP with key generated during EAP authentication, plus Cisco TKIP and/or Cisco MIC if configured on AP. | For details about setting these options, see “Configuring Wireless Adapter Settings” on page 2-19.<br>For additional information, consult your network administrator and the Summit documentation available at http://www.summitdatacom.com. |

**Table 2-2 Summit Client Utility Security Settings** *(continued)*

| Setting | Description | See ... |
|---|---|---|
| **EAP Type** | This setting is used with EAP authentication. For more specifics on the available EAP types, including certificate requirements, see Table 2-1 on page 2-10.<br>The available settings include:<br>■ None<br>■ LEAP<br>■ EAP-FAST<br>■ PEAP-MSCHAP<br>■ PEAP-GTC<br>■ EAP-TLS | For details about setting these options, see "Configuring Wireless Adapter Settings" on page 2-19.<br>For additional information, consult your network administrator and the Summit documentation available at http://www.summitdatacom.com. |

## Configuring Wireless LAN Settings

Configuring your wireless connection involves the following steps:

| Configuration Step | | See ... |
|---|---|---|
| **1** | Install the wireless adapter and protective cover.<br>If your cardiograph already has the adapter installed, proceed to step **2**. | "Installing the Wireless LAN Card and Cover" on page 2-13 |
| **2** | Load an authentication certificate and private keys, if necessary.<br>If the encryption method you will use does not require authentication certificate and private keys, proceed to step **3**. | "Loading Authentication Certificates" on page 2-16 |
| **3** | Configure one or more wireless profiles using the Summit Client utility, accessed from the Wireless Network configuration screen. | "Configuring Wireless Adapter Settings" on page 2-19 |
| **4** | Select a profile to use, and restart the cardiograph. | "Selecting the Active Profile" on page 2-25 |

## Before You Begin

Before you start the configuration process, ensure you have the following available:

- If you purchased the *PageWriter TC Cardiograph Wireless LAN Upgrade Kit*, you will install the wireless adapter and its protective cover before configuring the adapter. For details, see "Installing the Wireless LAN Card and Cover" on page 2-13.

  If the cardiograph was shipped to you with the adapter installed (see Figure 2-4 on page 2-13), you can proceed to loading certificates (if needed) and configuring the adapter.

- Authentication certificate, loaded onto a USB memory stick, if needed for the desired encryption method

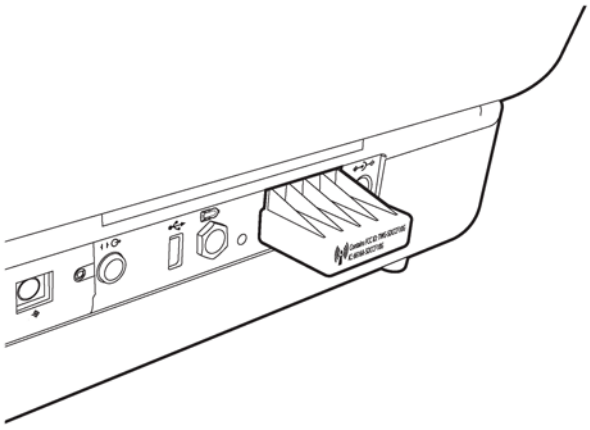
  Certificate requirements for each encryption method are described in Table 2-1 on page 2-10. Contact your network administrator to generate a certificate file for the authentication method the cardiograph will use, if required. For details, see "Loading Authentication Certificates" on page 2-16.

## Installing the Wireless LAN Card and Cover

If you purchased the *PageWriter TC Cardiograph Wireless LAN Upgrade Kit*, you will install the wireless adapter and its protective cover before proceeding with configuring the adapter. For details, see "Installing the Wireless LAN Card and Cover" on page 2-13.

If the cardiograph was shipped to you with the wireless LAN adapter installed, you can skip this installation procedure. The wireless LAN adapter, when installed in the cardiograph, is housed inside of a plastic cover that protects the adapter from outside conditions, and also prevents the adapter from being easily removed from the cardiograph. You can proceed loading certificates (if needed) and configuring the adapter.

**Figure 2-4 Summit Wireless LAN adapter with protective cover**

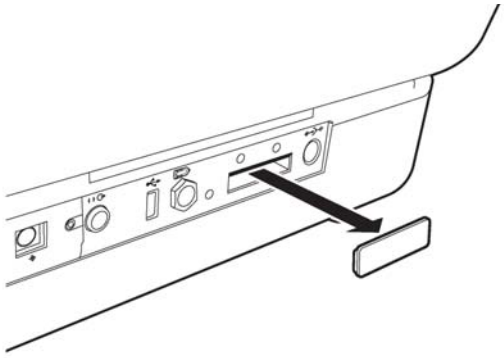


**CAUTION** Only use Summit wireless LAN adapters with the PageWriter TC cardiograph that have been purchased from Philips Medical Systems. The use of non-approved wireless LAN cards with the PageWriter TC cardiograph is not tested or supported, and Philips Medical Systems does not guarantee cardiograph operation or wireless LAN connectivity.

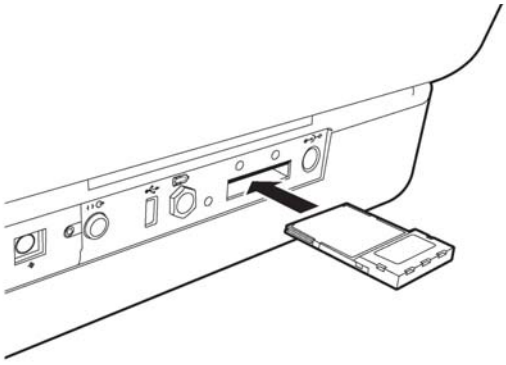
The PageWriter TC Cardiograph Wireless LAN Upgrade Kit includes the Summit adapter, a plastic protective cover, and two screws that are used to secure the cover to the cardiograph.

**To install the wireless adapter and the protective cover:**

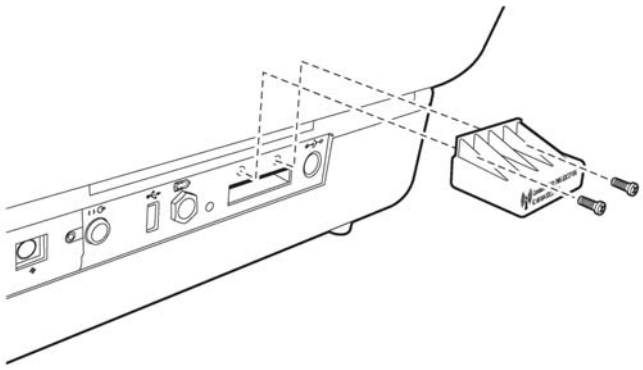
1 Remove the flat plastic cover that is secured over the PC card slot on the rear panel of the cardiograph. Once the plastic cover is removed, the PC card slot is visible.



2 Insert the Summit WLAN adapter into the PC card slot as shown. Ensure that the adapter is fully inserted into the slot.



**3** Place the protective cover over the adapter and secure it with the two screws as shown.

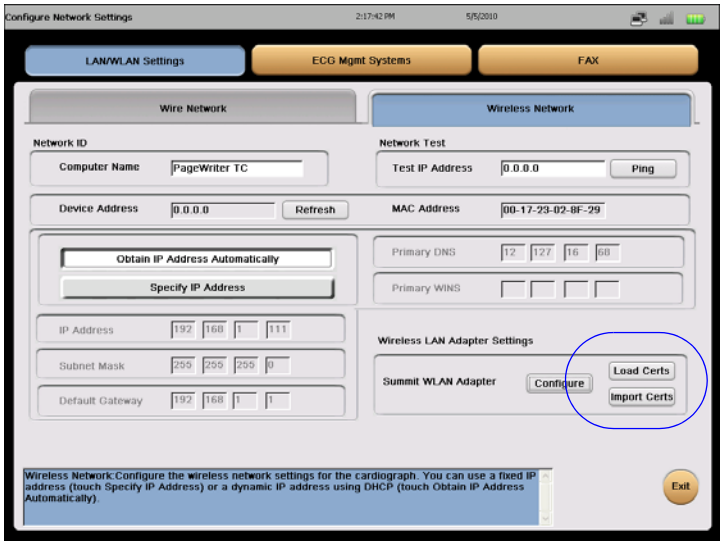


You are now ready to configure the adapter for use.

## About Authentication Certificates and Private Keys

The PageWriter TC cardiograph supports authentication certificates. For general certificates, use the **Load Certs** button to load and enable certificates (for example, 509 certificates and private keys) from a USB memory stick into the Summit Client Utility's certificate directory. For user certificates (for example, EAP-TLS), use the **Import Certs** button to launch the *Microsoft Certificate Utility*, which allows you to import a user certificate and private key (located in the Summit Client Utility's certificate directory) into the Microsoft System store.

**Figure 2-5 Wireless Network Setup Screen with Load Certs and Import Certs options**



If the encryption method you are using requires a certificate or an optional private key, have the network administrator generate the certificate/private key as required, and load these files onto a USB memory stick.

**CAUTIONS**

- Do not insert a USB memory stick into the cardiograph, or remove a USB memory from the cardiograph when the cardiograph is acquiring ECG data from a patient.
- The PageWriter TC cardiograph only supports the USB memory stick that is available for purchase as an optional accessory from Philips Medical Systems. Philips does not guarantee that other USB memory sticks are compatible with the PageWriter TC cardiograph.

Follow the steps described below to load authentication certificates and private keys, as required.

| Configuration Step | See ... |
|---|---|
| **1** Load an authentication certificate | "Loading Authentication Certificates" on page 2-16 |
| **2** Import user certificates and private keys | "Importing User Certificates and Private Key" on page 2-18 |

## Loading Authentication Certificates

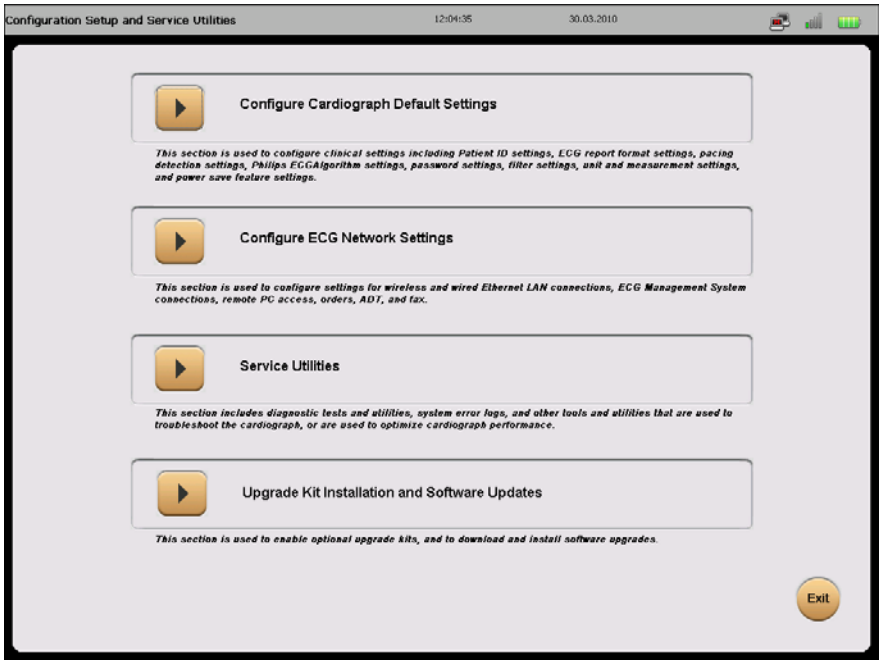
**To load an authentication certificate:**

**1** Ensure the certificate is on a USB memory stick. Contact your network administrator for the certificate.

**2** Insert the USB memory stick into the USB connector located on the front right side of the cardiograph.

**3** On the Main screen, touch **Setup** on the toolbar.

The Configuration Setup and Service Utilities menu appears.

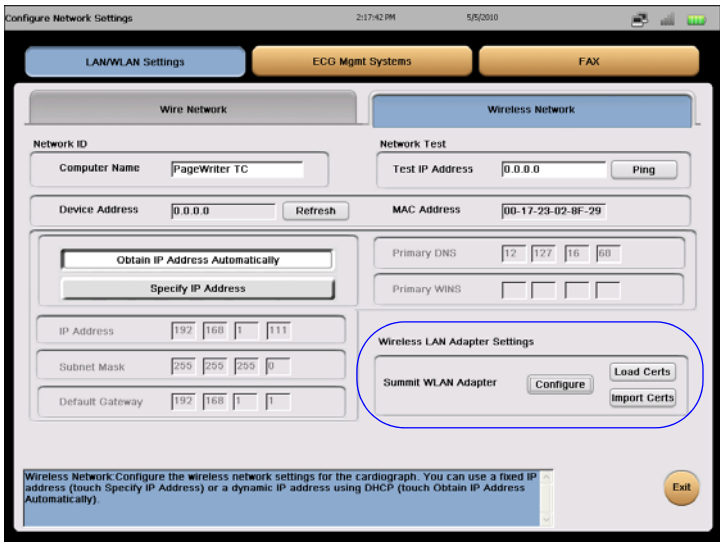

Configuration Setup and Service Utilities
12:04:35
30.03.2010
Configure Cardiograph Default Settings
This section is used to configure clinical settings including Patient ID settings, ECG report format settings, pacing detection settings, Philips EGGAlgorithm settings, password settings, filter settings, unit and measurement settings, and power save feature settings.
Configure ECG Network Settings
This section is used to configure settings for wireless and wired Ethernet LAN connections, ECG Management System connections, remote PC access, orders, ADT, and fax.
Service Utilities
This section includes diagnostic tests and utilities, system error logs, and other tools and utilities that are used to troubleshoot the cardiograph, or are used to optimize cardiograph performance.
Upgrade Kit Installation and Software Updates
This section is used to enable optional upgrade kits, and to download and install software upgrades.
Exit

4 Touch **Configure ECG Network Settings**.

The Configure Network Settings screens appear, and by default, the **LAN/WLAN** Settings tab (top of screen) is selected (highlighted in blue).

5 Touch the **Wireless Network** tab.

The wireless settings appear. The Wireless LAN Adapter Settings section provides access to the Summit Client Utility (SCU) and to the Certificate loading utility.




6 Touch **Load Certs**. The Load Personal Certificate window appears. Touch **Browse**. This shows the contents of the USB drive.

7 Locate and select the desired certificate, then touch **OK** to accept the entry and load the certificate.

8 If a private key is required, repeat step 6, but load the private key file.

9 Touch **OK** to close the window. The certificate is now loaded.

10 Verify the certificate is loaded from within the Summit Configuration Utility.

11 If you are using a user certificate that also has a private key, go to "Importing User Certificates and Private Key" on page 2-18.

### Importing User Certificates and Private Key

**To import user certificates and private key:**

1 Follow the instructions in "Loading Authentication Certificates" on page 2-16 to open the Wireless Network Setup screen.

2 On the Wireless Network Setup screen, touch the **Import Certs** button.

3 Touch the dropdown list under the selected **Stores** tab, and select **My Certificates**. The list of certificates that were previously loaded following the procedure "Loading Authentication Certificates" on page 2-16 appear at the right.

4 Select the desired certificate file, then touch **Import**. The Import Certificate or Key window appears, with the **From a File** radio button selected.

5 Touch **OK** (top right of window). The **Select a Certificate File** browser opens.

6 Navigate to the Certificates folder by touching **Storage Card**, and then press the *Enter* key (on keyboard).

7 On the following window, touch **Philips**, and then press the *Enter* key (on keyboard).

8 Ensure the **Type** dropdown (bottom of window) displays **Certificates**, and then touch the certificate file to import. When done, touch **OK** (top of the window). The certificate is loaded onto the cardiograph.

9 To import the associated private key, repeat steps 3 through 8. In step 4, select the private key file, then touch **Import**.

10 In the **Type** dropdown (bottom of window), select **Private Keys**.

11 Touch the private key file to import, and then touch **OK** (top of window).

12 You are prompted for the password. Type the password associated with the key, and then touch **OK** (top of the window). The private key is now imported.

13 To confirm that the key was imported, touch the **View** button on the Certificates dialog box. The Properties dialog box appears.

14 In the **Field** list, touch **Private Key**. If the key was properly imported, the Detail pane will display **Present**.

15 You now need to enable the certificate in the Summit Adapter Utility. Launch the Summit Adapter Utility.

16 Touch **Admin Login** and log into the utility, see "Configuring Wireless Adapter Settings" on page 2-19 for more information on using the utility.

**17** Touch the **Profile** tab, then touch the **Credentials** button. You are prompted to provide the user credentials.

**18** Type the name of the certificate to use, and touch **OK**. The utility validates the certificate.

**19** Touch the **Main** tab of the utility, and you will see that the connection becomes secured by the certificate. You can now exit the utility.

## Configuring Wireless Adapter Settings

All wireless LAN settings are contained in a *Profile* that is created within the Summit Client Utility (SCU). Once a profile is created, you can apply it to the cardiograph by selecting it as the *Active Profile* in the SCU.

You only need to configure the following settings for immediate use, which are described in the next procedure:

- SSID (service set identifier) of the wireless network you are using
- Encryption method to use
- If using a certificate for the selected encryption method, the user name and password associated with the certificate

You can fine tune additional profile settings. The following table provides a high-level overview of the settings you can configure. For more detailed information about fine-tuning any of the settings in the SCU, refer to the Summit product documentation available at www.summitdatacom.com.

**Table 2-3 Summit Client Utility Profile Settings Overview**

| Setting | Description | Philips Recommended Default Setting |
|---|---|---|
| SSID (Service Set Identifier) | Defines the accessible access point(s). Can contain up to 32 characters, and is case sensitive. | Consult your network administrator for more information on this setting.<br><br>**NOTE** If you leave the SSID field blank, the cardiograph can associate with any access point on the network that is configured to accept broadcast SSIDs. |
| Client Name | Defining a name (up to 16 characters) for the specific cardiograph allows an administrator to determine what devices are connected to the network. | Consult your network administrator for more information on this setting. |

**Table 2-3 Summit Client Utility Profile Settings Overview** *(continued)*

| Setting | Description | Philips Recommended Default Setting |
|---|---|---|
| Power Save | Defines the power consumption level for the wireless adapter.<br>■ CAM (Constantly Awake Mode)<br>■ Maximum (Maximum power savings)<br>■ Fast PSP (Fast power save mode) | Fast PSP (Power Save Mode)<br>**NOTES**<br>■ *Fast PSP* is a power saving mode that automatically adjusts battery consumption based upon the amount of network traffic. For example, during periods of low network activity, less power is consumed.<br>■ *CAM* is not recommended for use due to high power consumption.<br>■ The *Maximum* setting is not recommended due to the low level of data throughput. |
| Tx Power | Defines the power level at which the wireless adapter transmits to the access point.<br>■ Max: Automatically uses the maximum allowable transmit setting as defined by the local regulatory domain<br>■ Manual setting to any of the following (all in milliwats): 50, 30, 20, 10, 5, 1 (mW) | Max<br>**NOTE** The *Transmit Power* setting can be overridden by a Cisco AP if the CCX Support global setting is set to *Full,* and AP defines maximum transmit power for client as lower value. |
| Bit Rate | Specifies the bit rate used by radio when interacting with an AP.<br>■ Auto: Bit rate is automatically negotiated with the AP<br>■ Manual setting at any of the following (all in megabits per second): 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 (Mbps) | Auto<br>**NOTE** If you specify a manual bit rate setting, the radio will connect to an AP only if that AP has the specified SSID configured with the selected bit rate as the only required rate. |

**Table 2-3 Summit Client Utility Profile Settings Overview** *(continued)*

| Setting | Description | Philips Recommended Default Setting |
|---|---|---|
| Radio Mode<br>D21 Wireless LAN Option *only* | Defines the frequencies and data rates used when interacting with an access point (AP).<br>■ BG rates full: Includes all 802.11b and 802.11g rates<br>■ BG rates subset: Includes a subset of values including 1, 2, 5.5, 6, 11, 24, 36, and 54 Mbps (see note)<br>■ 802.11b<br>1, 2, 5.5, and 11 Mbps<br>■ 802.11 g<br>6, 9, 12, 18, 24, 36, 48, and 54 Mbps<br>■ Ad Hoc (not supported, see note) | BG rates full<br>**NOTES**<br>■ The *BG rates subset* setting should only be used with Cisco APs running IOS in autonomous mode (without controllers). For Cisco APs that are tied to controllers and for non-Cisco APs, use the *BG rates full* setting.<br>■ The PageWriter TC cardiograph does not support the *Ad Hoc* setting, or any type of *peer-to-peer* communication. |
| Radio Mode<br>D22 Wireless LAN Option *only* | ■ A rates only: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps<br>■ ABG rates full: all 802.11a rates and all 802.11b and 802.11g rates, with 802.11a rates preferred<br>■ BGA rates full: all 802.11b and 802.11g rates and all 802.11a rates, with 802.11b and 802.11g rates preferred<br>■ Ad Hoc (not supported, see note) | ABG rates full<br>**NOTE**<br>■ The PageWriter TC cardiograph does not support the *Ad Hoc* setting, or any type of *peer-to-peer* communication. |

**Table 2-3 Summit Client Utility Profile Settings Overview** *(continued)*

| Setting | Description | Philips Recommended Default Setting |
|---|---|---|
| Authentication Type | Defines how the wireless adapter attempts to authenticate to an access point.<br>■ Open<br>■ Shared-key<br>■ LEAP (Network-EAP) | Consult your network administrator for more information on this setting. |
| Encryption | See Table 2-2 on page 2-11 | Consult your network administrator for more information on this setting. |
| EAP Type | See Table 2-2 on page 2-11 | Consult your network administrator for more information on this setting. |

**NOTES** Before proceeding with this section:

- Ensure that the wireless adapter is properly installed in the cardiograph.
- Load any required authentication certificates for wireless access. Table 2-1 on page 2-10 describes the encryption methods and whether certificates are required. For installation details, see "Loading Authentication Certificates" on page 2-16.

**To configure wireless adapter settings:**

1 On the Main screen, touch **Setup** on the toolbar.

The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **Configure ECG Network Settings**.

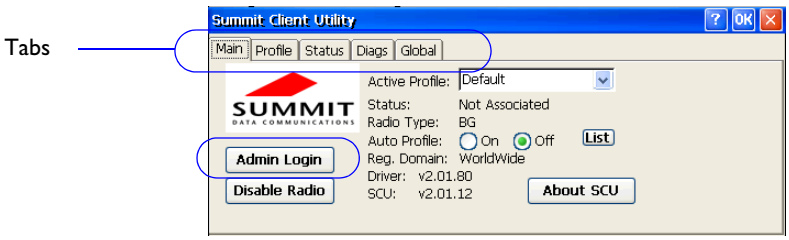
The Configure Network Settings screens appear, and by default, the **LAN/WLAN** Settings tab is selected (highlighted in blue).

3 Touch the **Wireless Network** tab.

The wireless settings appear. The Wireless LAN Adapter Settings section provides access to the Summit Client Utility (SCU) and to the Certificate loading utility. See figure on page 2-17.

4 In the Summit WLAN Adapter section, touch **Configure**.

The Summit Client Utility (SCU) appears. To configure adapter settings, you must log in and enter the Administrator view.




5 Touch **Admin Login**.

The Admin Password Entry window appears.

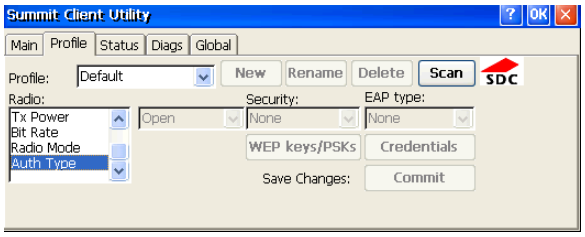
6 Type the default password **SUMMIT** (all caps).

NOTE To change the password, touch the **Global** tab, and then select **Admin Password** from the **Properties** list.

7 Touch the **Profile** tab (top of window).

The Profile tab shows all of the settings on this tab can be saved as an individual *profile*. A profile defines all of the wireless settings applied to the cardiograph. The currently selected profile appears in the Profile dropdown list (top of window).

The first time that the SCU is run, the selected profile is **Default**.




You can now either create a new profile, or simply edit the settings associated with the Default profile.

NOTE You can define up to 20 individual profiles.

8 Do any of the following:

– To create a new profile, touch **New**; you are prompted to name the profile. When finished, you can configure settings for the profile.

– To rename the Default profile, touch **Rename**; you are prompted to rename the profile. When finished, you can configure settings for the profile.

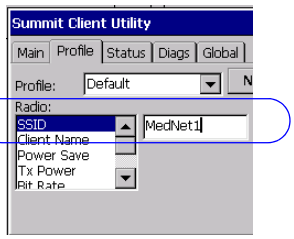
The mandatory settings to configure are the SSID, Encryption method, and certificate access, if used.

The **Radio** list contains all of the available settings. For a high-level overview of each option, see Table 2-3, “Summit Client Utility Profile Settings Overview,” on page 2-19. Touch the scroll bar to move through the options in the list, and touch an option to select it.

**9** Touch **SSID** in the **Radio** list to specify the SSID.

The field to the right of the dropdown list is blank. Type the desired entry. The SSID can be up to 32 characters in length, and is case sensitive.

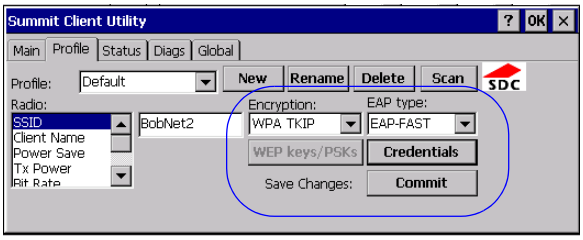
**NOTE** If you leave the SSID field blank, the cardiograph can associate with any access point on the network that is configured to accept broadcast SSIDs.




**10** To set the encryption method, do the following:

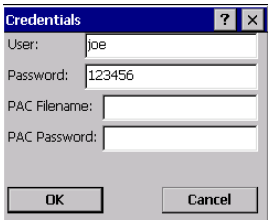
**a** Touch the **Encryption** dropdown arrow, and select the desired method.

The following figure shows the EAP-FAST TKIP option selected. This method requires a certificate. Other methods may require that you enter a passphrase or key; in that case, the **WEP keys/PSKs** button will be active (for an example, go to step **d**).




**b** If the method requires a certificate, touch **Credentials**. If it does not, proceed to step **d**.

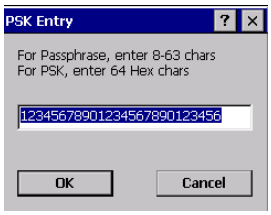
The Credentials dialog box appears.




**c** In the User field and Password fields, type the user name and password associated with the certificate, then touch **OK**.

**d** If the encryption method does not require a certificate but requires a passphrase or WEP key, touch **Wep keys/PSKs**.

The PSK Entry dialog box appears.




**e** Type the entry, then touch **OK**.

**11** When finished, touch **Commit** to save changes to the profile.

You can now select the profile to use, as described next. You will select a profile, and then reboot the cardiograph to apply the settings.

## Selecting the Active Profile

The active profile defines the operating parameters for the wireless adapter.

**To select the active profile:**

**1** Do one of the following:

– If you just finished configuring a profile as described in the previous procedure, touch the **Main** tab.

– If you are activating a different profile, access the SCU as described in steps **1** through **4** on page 2-22, then touch the **Main** tab.

**2** Touch the **Active Profile** dropdown arrow to display the list of available profiles.

**3** Touch a profile to select it.

The list closes with the selected profile displayed. The profile settings are applied.

**4** If configuration is complete, and all certificates have been loaded, touch **OK** at the top right hand corner of the SCU window to close the utility.

**5** To exit the setup screens, touch **Exit** at the bottom right of the screen. You may be prompted to save changes.

**6** The cardiograph must restart in order for the new wireless settings to be applied. Press and hold down the On/Standby button ( ) (front panel of cardiograph) for five seconds to shut down the cardiograph.

**7** Press the On/Standby button again to restart the cardiograph.

The new wireless settings are applied.

### Wireless LAN Connectivity Indicator

The status of the wireless LAN connection displays on the Status Bar located at the top of any cardiograph screen.

**Figure 2-6 Wireless LAN Status Indicator on Status Bar**

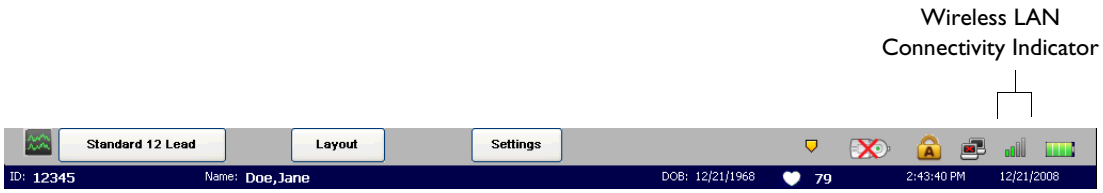



**Table 2-4 Wireless LAN Connectivity Indicator**

| Label | Description |
|---|---|
| **Wireless LAN Connectivity** | Wireless LAN connectivity:<br>■ Indicates the signal strength of the wireless LAN connection.<br>■ Green bars indicate that the wireless adapter is associated to an access point. The higher the number of green bars, the better the connection.<br>■ Gray bars indicate that the wireless adapter is unable to associate to an access point. |

# Testing the Network or Modem Connection

Use the **Ping Test** available in the **Maintenance Test** menu in Setup to verify that the configured wired or wireless network connection can successfully communicate over a network connection to an entered IP address.

**To perform the Ping Test:**

1 Ensure that the LAN cable is securely attached to the LAN connector ( ) on the rear of the cardiograph, or that the wireless LAN adapter is associated to an access point and that green bars appear on the Status bar (top of screen), indicating a live wireless connection.

2 Touch the **Setup** button on the toolbar. The Configuration Setup and Service Utilities menu appears.

3 On the menu, touch **Configure Cardiograph Default Settings**. On the Default Cardiograph Settings screen, touch the **Maintenance Test** button (upper right side of screen).

4 On the Maintenance Test screen, touch the **Ping Test** button. The Ping Test window appears.

5 Enter the IP address to ping. Touch the **Ping** button.

6 The Ping Test results window appears and reports the test results.

# 3

# Configuring TraceMaster ECG Management System Settings

The PageWriter TC cardiographs can communicate over an Ethernet LAN, wireless LAN, or modem with the Philips TraceMaster ECG Management System for an integrated order and ECG management workflow solution. Enabling cardiograph connectivity with a TraceMaster server allows for the direct downloading of pending patient orders to the cardiograph, and for the subsequent uploading of completed orders and associated ECGs to TraceMaster for reconciliation, review, and processing. Also, you can enable the Last ECG and interactive query features on the cardiograph so that you can download ECGs directly from a TraceMaster server to the cardiograph for on-screen review, printing, and previous ECG comparison purposes directly at the cardiograph.

For more information on any optional cardiograph features described in this chapter (LAN, wireless LAN, modem, orders, ADT support), consult your Philips sales representative, or your local dealer or distributor.

Configuring connectivity between a cardiograph and the TraceMaster ECG Management System with the OrderVue order handling option involves multiple steps, as described in the following table.

**Table 3-1 Configuring TraceMaster Connectivity**

| Step | Description | For more information, see... |
|---|---|---|
| 1 | Configure Wireless LAN Settings (if necessary) | “Configuring Wireless LAN Settings” on page 2-12 |
| 2 | Configure wired Ethernet LAN settings (if necessary) | “Configuring Cardiograph Network Settings” on page 2-4. |
| 3 | Test network connectivity | “Testing the Network or Modem Connection” on page 2-26 |
| 4 | Configure TraceMaster Server connections; test connectivity | “About Configuring TraceMaster Connections” on page 3-2. |
| 5 | Configure time synchronization settings | “Specifying Time Synchronization Settings” on page 3-18. |
| 6 | Configure Order settings (if necessary); test order connectivity | “Configuring OrderVue Settings” on page 4-1. |

**Table 3-1 Configuring TraceMaster Connectivity** *(continued)*

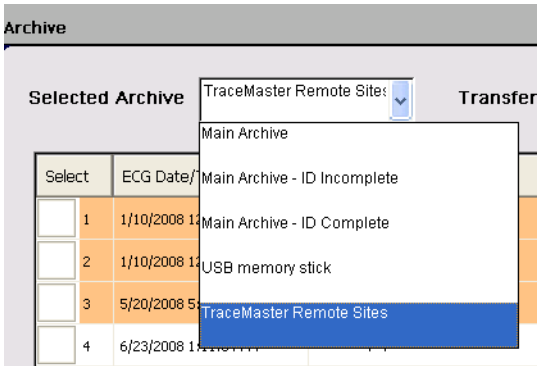
| Step | Description | For more information, see... |
|---|---|---|
| 7 | Configure Institution Identification Information | See Chapter 2 of the *PageWriter TC Cardiograph Instructions for Use*, or use the Setup Help. For information on using the Setup Help, see “Using Setup Help" on page 1-9. |
| 8 | Configure Patient ID settings | See Chapter 2 of the *PageWriter TC Cardiograph Instructions for Use*. |

# About Configuring TraceMaster Connections

You use the **ECG Management Systems** settings in Setup to configure a connection to a specific TraceMaster ECG Management System server. Once connected, the cardiograph can retrieve orders and ECG data from the server, as well as transmit completed ECGs back to the server for review, editing, reconciliation, and storage. Cardiographs can connect to a TraceMaster server using a wired or wireless LAN connection, or using a modem.

The Archive is used to transmit ECGs to and from the cardiograph, and to search a configured TraceMaster server for ECGs to save to the cardiograph and to print on the cardiograph. For more information on using the Archive to transmit ECGs to TraceMaster, see the *PageWriter TC Cardiograph Instructions for Use*.

TraceMaster servers appear in the **Selected Archive** dropdown list (top left corner of screen) on the Archive screen under the list entry **TraceMaster Remote Sites**.




## About Supported TraceMaster Versions and Compatibility

ECG data is stored on the cardiograph, and then transmitted to the selected TraceMaster server in XML format. Due to limitations with the XML schema version used to transfer ECG data to the TraceMaster server, there are restrictions on the supported algorithm version(s) and the ability to transmit ECG data in extended 16-lead format to certain versions of the TraceMaster ECG Management System. The TraceMaster ECG Management System version is selected under the **ECG Mgmt Version** dropdown list located under the **Create TraceMaster** tab in Setup.

Table 3-1 provides a listing the available TraceMaster server versions along with the supported XML version, supported algorithm version, and available support for 16-lead data

transmission. For further information on the capabilities of specific TraceMaster versions, consult the TraceMaster product documentation.

**Table 3-1 TraceMaster Server Version Compatability**

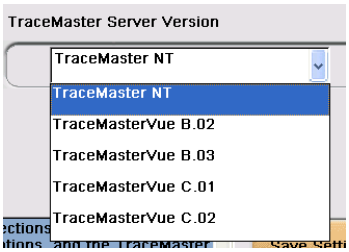
| Selected TraceMaster Server Version | XML Schema Version | Supported Algorithm Version(s) | Available 16-Lead Support |
|---|---|---|---|
| **TraceMaster NT selected**<br>  <br><br>**Supported TraceMaster version:**<br>■ TraceMaster NT (no orders support) | 1.03 | ■ Philips 12-Lead Algorithm, version PH090A<br>■ Only 12 leads are analyzed with algorithm version PH090A; no analysis is provided for extended leads | ■ Does not support the transmission of ECG data in any extended 15 or 16-lead format.<br>■ If a 15 or 16-lead ECG is transferred to a TraceMaster NT or TraceMaster A.02.02 server, the additional ECG data for the right side precordial or posterior leads is deleted, and the ECG is transferred in standard 12-lead format. |

**Table 3-1 TraceMaster Server Version Compatability** *(continued)*

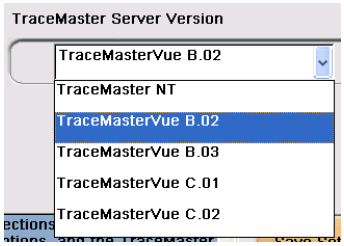
| Selected TraceMaster Server Version | XML Schema Version | Supported Algorithm Version(s) | Available 16-Lead Support |
|---|---|---|---|
| **TraceMasterVue B.02 selected**<br>  <br><br>**Supported TraceMasterVue versions:**<br>■ TraceMaster B.01<br>■ TraceMaster B.02 | 1.04 | ■ Philips 12-Lead Algorithm, version PH090A<br>■ Only 12 leads are analyzed with algorithm version PH090A; no analysis is provided for extended leads | ■ Full ECG data from extended 15 or 16-lead ECGs is transferred to the TraceMaster ECG Management System. However, serial comparison is not supported for extended leads.<br>■ Custom extended lead configurations are not supported in TraceMaster. Only ECGs that use the specified Posterior, Balanced, or Pediatric lead configurations are supported (see Table 3-2 on page 3-8).<br>■ ECGs containing a custom lead configuration will be rejected. |

**Table 3-1 TraceMaster Server Version Compatability** *(continued)*

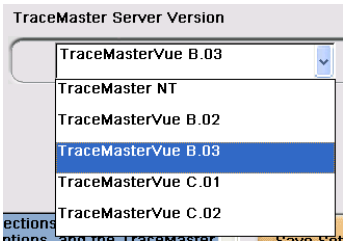
| Selected TraceMaster Server Version | XML Schema Version | Supported Algorithm Version(s) | Available 16-Lead Support |
|---|---|---|---|
| **TraceMasterVue B.03 selected**<br>  <br><br>**Supported TraceMasterVue version:**<br>■ TraceMaster B.03 (including TraceMaster Basic Edition and TraceMaster MD support) | ■ 1.04 | ■ Philips 12-Lead Algorithm, version PH090A<br>■ Only 12 leads are analyzed with algorithm version PH090A; no analysis is provided for extended leads | ■ Full ECG data from extended 15 or 16-lead ECGs is transferred to the TraceMaster ECG Management System. However, serial comparison is not supported for extended leads.<br>■ Custom extended lead configurations are not supported in TraceMaster. Only ECGs that use the specified Posterior, Balanced, or Pediatric lead configurations are supported (see Table 3-2 on page 3-8).<br>■ ECGs containing a custom lead configuration will be rejected. |

**Table 3-1 TraceMaster Server Version Compatability** *(continued)*

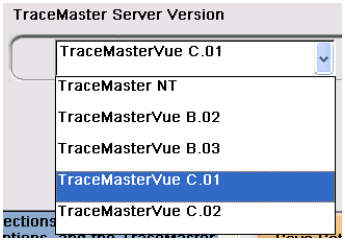
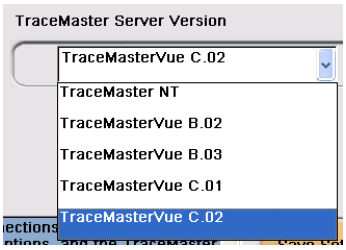
| Selected TraceMaster Server Version | XML Schema Version | Supported Algorithm Version(s) | Available 16-Lead Support |
|---|---|---|---|
| **TraceMasterVue C.01 selected**<br>  <br><br>**Supported TraceMasterVue version:**<br>TraceMaster C.01 (including full multi modality support) | 1.04.01 | ■ Philips 12-Lead Algorithm, version PH090A<br>■ Only 12 leads are analyzed with algorithm version PH090A; no analysis is provided for extended leads<br>■ Philips DXL 16-Lead ECG Algorithm, version PH100B; this version provides full interpretation for up to 16 leads | ■ TraceMaster supports storage, review, edit, and confirmation of ECGs that include the Philips DXL 16-Lead ECG Algorithm, but does not allow for serial comparison of these ECGs.<br>■ Custom extended lead configurations are not supported in TraceMaster. Only ECGs that use the specified Posterior, Balanced, or Pediatric lead configurations are supported (see Table 3-2 on page 3-8).<br>■ ECGs containing a custom lead configuration will be rejected. |

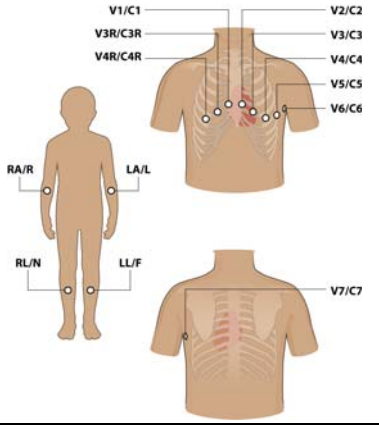
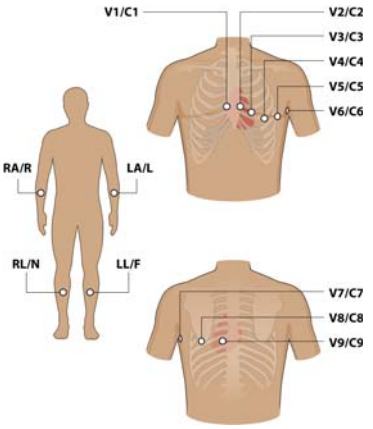
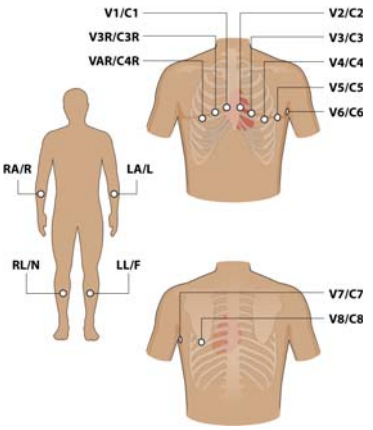
**Table 3-1 TraceMaster Server Version Compatability** *(continued)*

| Selected TraceMaster Server Version | XML Schema Version | Supported Algorithm Version(s) | Available 16-Lead Support |
|---|---|---|---|
| **TraceMasterVue C.02 selected**<br>  <br><br>**Supported TraceMasterVue versions:**<br>■ TraceMaster C.02<br>■ TraceMaster C.03 | 1.04.01 | ■ Philips 12-Lead Algorithm, version PH090A<br>■ Only 12 leads are analyzed with algorithm version PH090A; no analysis is provided for extended leads<br>■ Philips DXL 16-Lead ECG Algorithm, version PH100B; this version provides full interpretation for up to 16 leads | ■ TraceMaster supports storage, review, edit, and confirmation of ECGs that include the Philips DXL 16-Lead ECG Algorithm, but does not allow for serial comparison of these ECGs.<br>■ Custom extended lead configurations are not supported in TraceMaster. Only ECGs that use the specified Posterior, Balanced, or Pediatric lead configurations are supported (see Table 3-2 on page 3-8).<br>■ ECGs containing a custom lead configuration will be rejected. |

# About TraceMaster Supported Extended Lead Configurations

Table 3-2 describes the 15 and 16-lead configurations that are supported by the TraceMaster ECG Management System version B.01 and higher.

**Table 3-2 TraceMaster Version B.01 and Higher Supported Extended Lead Configurations**

| Lead Option | Standard 12-leads plus extended leads (AAMI/IEC) | Lead Placement |
|---|---|---|
| Pediatric (15 leads) | V3R/C3R, V4R/C4R, V7/C7 |  |
| Posterior (15 leads) | V7/C7, V8/C8, V9/C9 |  |
| Balanced (16 leads) | V3R/C3R, V4R/C4R, V7/C7, V8/C8 |  |

## About Security

The cardiograph offers the Secure Sockets Layer (SSL) encryption protocol for the secure transmission of ECG and order data between a TraceMaster server and the cardiograph.

**NOTE** To fully enable SSL encryption, you must enable it **both** on the cardiograph and on the TraceMaster system(s) that the cardiograph will connect to.

# Configuring a TraceMaster Connection

The cardiograph transmits ECG and order data to a TraceMaster ECG Management System using a wired or wireless network connection, or via a Remote Access Server (RAS) connection using a modem. For details, see:

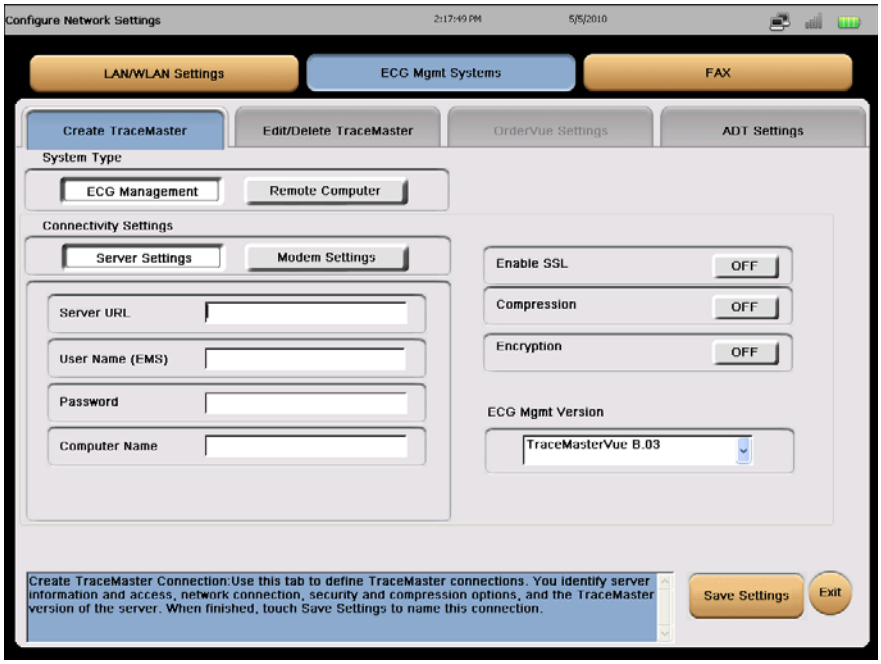
- "Configuring a Network TraceMaster Connection" on page 3-9.
- "Configuring a TraceMaster Connection with the Modem" on page 3-13.

### Configuring a Network TraceMaster Connection

You can configure a wireless LAN or Ethernet LAN connection to transfer data between the cardiograph and a TraceMaster server.

**To configure a TraceMaster connection using a LAN or WLAN:**

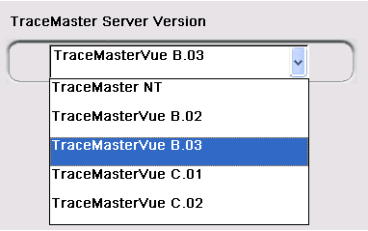
1. On the cardiograph toolbar, touch **Setup**. The Configuration Setup and Service Utilities menu appears.
2. Touch **Configure ECG Network Settings**. The **Wire Network** tab appears.
3. Touch the **ECG Mgmt Systems** button. The **Create TraceMaster** tab appears, with **ECG Management**, and **Server Settings** selected by default.




**4** Enter data into the fields on the screen as follows:

| Field | Set as follows... |
|---|---|
| Server URL | Type the Computer Name or the IP address of the TraceMaster server, using the following format.<br>http://<*Computer Name*>/emscomm/<br>or<br>http://<*IP Address*>/emscomm/<br>All elements are required, including “emscomm” and the final forward slash /. Replace <*Computer Name*> or <*IP Address*> with the specific information for the TraceMaster server.<br>Valid URL addresses are, for example:<br>http://TraceMasterVue/EMSCOMM/<br>or<br>http://10.101.2.42/EMSCOMM/<br>**Note:** if configuring the cardiograph to communicate with a TraceMaster Blade server, it is recommended that a **Computer Name** be used rather than an **IP Address**. For more information, see the TraceMasterVue product documentation. |

| Field | Set as follows... |
|---|---|
| User Name | Type a valid user account that has permission to log into the TraceMaster server.<br>The user name specified must be added as a member of a TraceMaster group that has View privileges to TraceMaster data. For more information, see the TraceMasterVue product documentation. |
| Password | Type the password associated with the user name. |
| Computer Name | This field is only used when configuring a remote PC or server (that contains a shared folder) for use with the PDF Export and Remote PC features. For more information, see "Configuring PDF Export and Remote PC Settings" on page 5-1. |
| Enable SSL | Touch the **ON/OFF** button to enable or disable the Secure Socket Layer (SSL) encryption.<br>If enabled on the cardiograph, you must also enable SSL on the TraceMaster server; otherwise, ECGs will not be transferred.<br>**NOTE:** If you are using SSL encryption, you do not need to enable the separate Encryption option (below). |
| Compression | Touch the **ON/OFF** button to enable or disable lossless ECG compression.<br>This option enables/disables compression of ECGs for transfer to a TraceMaster server. Compressing ECGs results in shorter transmission times. An uncompressed ECG is generally around 220Kb; compressed, around 40Kb.<br>When enabled, ECGs are compressed using Zlib, lossless compression. Upon receipt on the TraceMaster server, the ECG is uncompressed.<br>**NOTE**: This Compression option is only supported with TraceMasterVue version C.01 and higher. |

| Field | Set as follows... |
|---|---|
| Encryption | Touch the **ON/OFF** button to enable or to disable data encryption.<br><br>Encryption protects patient privacy. This option enables/ disables encryption of ECGs to ensure secure transmission to TraceMaster servers. Upon transmission of ECGs to the TraceMaster server, the cardiograph uses a 40-bit encryption key. Upon receipt on the TraceMaster server, the ECG file is decrypted prior to storage.<br><br>When enabled, data is encrypted.<br><br>**NOTES:**<br><br>■ When **ENABLE SSL** is selected on the cardiograph, as well as on the remote server, you do not need to enable additional encryption by selecting this option.<br>■ This Encryption option is only supported with TraceMasterVue version C.01 and higher. |
| TraceMaster Server Version | Select the TraceMaster version from the dropdown list.<br><br>Selecting the version also sets the XML version for ECG storage and transfer.<br><br>  <br><br><br>**NOTES:** The Compression and Encryption options are only supported with TraceMasterVue version C.01.<br><br>For TraceMasterVue version C.03, select **TraceMasterVue C.02**.<br><br>For TraceMasterVue version B.01, select **TraceMaster B.02**.<br><br>For TraceMasterVue version A.04.02, select **TraceMaster NT**. |

**5** Touch **Save Settings** to save the connection.

The Save TraceMaster Connection dialog box appears, prompting you to name this TraceMaster connection. The name you specify is what will appear on the Archive screen when transferring ECGs from the cardiograph to TraceMaster.

6 Type the name to identify this connection, then touch **OK**.

The site is saved, and the **Edit/Delete TraceMaster** screen appears, with the newly added connection displayed in the server list.

You can now continue to verify and configure TraceMaster settings as follows:

- Test the new TraceMaster connection (page 3-16).
- Set the default TraceMaster server connection to use for this cardiograph (page 3-17).
- Set time synchronization settings for this connection (page 3-18).

## Configuring a TraceMaster Connection with the Modem

The cardiograph can transmit ECG data to a TraceMaster server via a Remote Access Server (RAS) connection using the optional modem. For information on using the modem to fax ECGs to a remote receiving fax machine, see “Configuring FAX Settings” on page 7-1.

**WARNING** **Never connect the modem card to a phone line when the cardiograph is connected to a patient.**

**To configure a TraceMaster connection using a modem:**

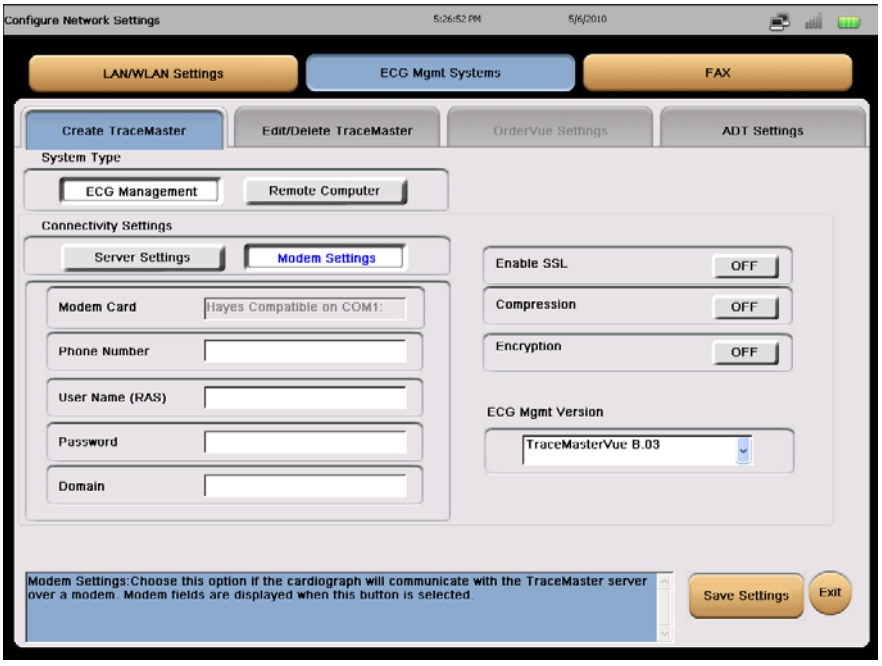
1 On the Main screen, touch **Setup**.

The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **Configure ECG Network Settings**. The **Wire Network** tab appears.

3 Touch the **ECG Mgmt Systems** button. The **Create TraceMaster** tab appears, with **ECG Management** selected by default.

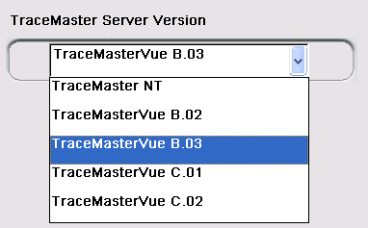
4 Under Connectivity Settings, touch **Modem Settings**.



**5** Specify fields as follows:

| Field | Set as follows... |
|---|---|
| Modem Card | Read-only field showing the installed internal modem card. |
| Phone Number | Type the TraceMaster RAS server modem telephone number. |
| User Name (RAS) | Type a valid user account that has permission to log into the server through RAS.<br>The domain name, which is the computer name of the TraceMaster (RAS) server, must be specified together with the user name. For example, if the domain name for the TraceMaster server is *TMVue1*, and the user name is *pwt*, type *TMVue1/pwt* into the User Name field. The same Domain name is entered into the Domain field.<br>**NOTES**<br>■ The user name must be configured for RAS access. If it is not, the user will be unable to transmit ECGs or perform interactive queries to TraceMaster using the modem RAS connection.<br>■ Also, the user name specified must be added as a member of a TraceMaster group that has View privileges. For details, refer to the TraceMasterVue ECG Management System documentation suite. |
| Password | Type the password associated with the user name. |
| Domain | The computer name of the TraceMaster (RAS) server. Required for modem connection.<br>The domain is also specified in the User Name field. |
| Enable SSL | Touch the **ON/OFF** button to enable or disable the Secure Socket Layer (SSL) encryption.<br>If enabled on the cardiograph, you must also enable SSL on the TraceMaster server; otherwise, ECGs will not be transferred.<br>**NOTE**: If you are using SSL encryption, you do not need to enable the separate Encryption option (below). |

| Field | Set as follows... |
|---|---|
| Compression | Touch the **ON/OFF** button to enable or disable lossless ECG compression.<br><br>This option enables/disables compression of ECGs for transfer to remote server. Compressing ECGs results in shorter transmission times. An uncompressed ECG is generally around 220Kb; compressed, around 40Kb.<br><br>When enabled, ECGs are compressed using Zlib, lossless compression. Upon receipt on the remote server (TraceMaster), the ECG is uncompressed.<br><br>**NOTE**: This Compression option is only supported with TraceMasterVue version C.01 and higher. |
| Encryption | Touch the **ON/OFF** button to enable or disable data encryption.<br><br>Encryption protects patient privacy. This option enables/ disables encryption of ECGs to ensure secure transmission to remote servers. Upon transmission of ECGs to the remote server, the cardiograph uses a 40-bit encryption key. Upon receipt on the remote server, the ECG file is decrypted prior to storage.<br><br>When enabled, data is encrypted.<br><br>**NOTES**: When **ENABLE SSL** is selected on the cardiograph, as well as on the remote server, you do not need to enable additional encryption by selecting this option.<br><br>This Compression option is only supported with TraceMasterVue version C.01 and higher. |

| Field | Set as follows... |
|---|---|
| TraceMaster Server Version | Select the TraceMaster version from the dropdown list.<br>Selecting the version also sets the XML version for ECG storage and transfer.<br>  <br>**Notes**: For TraceMasterVue version C.03 select **TraceMasterVue C.02**.<br>For TraceMasterVue version B.01 select **TraceMaster B.02** from the dropdown list.<br>For TraceMasterVue version A.04.02 select **TraceMaster NT** from the dropdown list. |



6 Touch **Save Settings** to save the connection.

The Save TraceMaster Connection dialog box appears, prompting you to name the new TraceMaster connection. The name you specify is what will appear in the Archive screen dropdown list on the cardiograph. The Archive is used to transfer ECGs to TraceMaster and to download ECGs from TraceMaster to the cardiograph.

7 Type the name to identify this remote site, then touch **OK**.

NOTE Be sure there are no spaces in the TraceMaster connection name; spaces prevent the modem from connecting to the server.

The site is saved, and the **Edit/Delete TraceMaster** screen appears, with the newly added connection displayed in the server list.

You can now continue to verify and configure TraceMaster settings as follows:

- Test the new TraceMaster connection (page 3-16)
- Set the default TraceMaster server connection to use for this cardiograph (page 3-17)
- Set time synchronization settings for this connection (page 3-18)
- Set Auto Logs settings for this connection (page 3-20)

## Testing the TraceMaster Connection

Follow the procedure below to test the new connection between the TC cardiograph and a TraceMaster server.

**To test connection to the server:**

1 On the Main screen, touch **Setup**.

The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **Configure ECG Network Settings**.

3 Touch **LAN/WLAN Settings**. The **Wire Network** tab appears.

4 In the **Network Test** section (upper right corner of screen), type the IP address of the server to test in the **IP Address** field.

5 Touch **Ping**.

If the cardiograph can connect to the server, the test is successful and the cardiograph can transmit data to the server.

If the test fails, refer to the troubleshooting information, or consult your network administrator for further assistance.

## Setting the Default TraceMaster Server

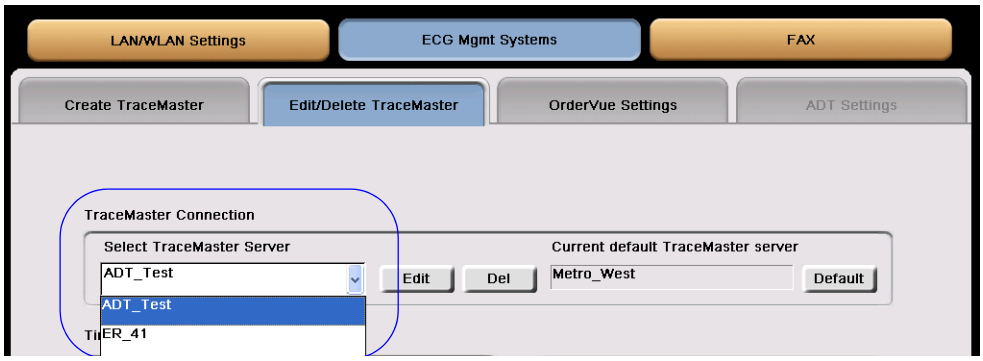
After defining one or more TraceMaster connections, you must set a default TraceMaster server for this cardiograph to connect to when transmitting ECGs from the Archive. This is the connection the cardiograph will automatically connect to unless another configured server is manually selected prior to transferring ECGs from the Archive. In addition, this is the server that the cardiograph will use for synchronizing time settings.

If no server is configured as the default, this field shows the text, **No default connection**.

**NOTE** To be able to synchronize the time between the cardiograph and a TraceMaster server, you must define the default server with which to synchronize.

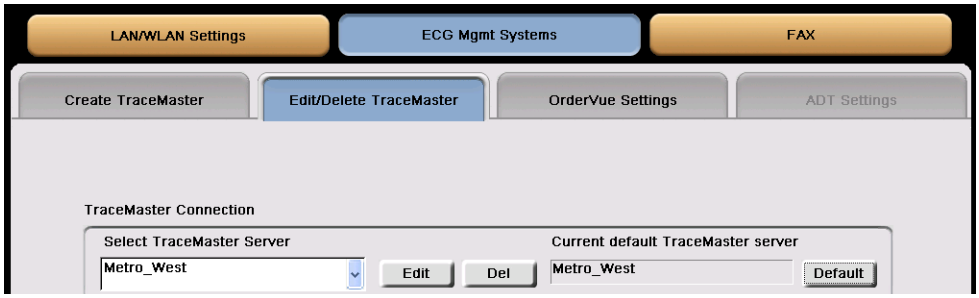
**To set the default TraceMaster server:**

1 On the **Edit/Delete TraceMaster** screen, touch the **Select TraceMaster Server** dropdown list and select the server to set as the default.




2 Touch **Default**.

The name of the selected server now appears in the **Current default TraceMaster server** field.




You can now set time synchronization options for this cardiograph and the default server.

## Specifying Time Synchronization Settings

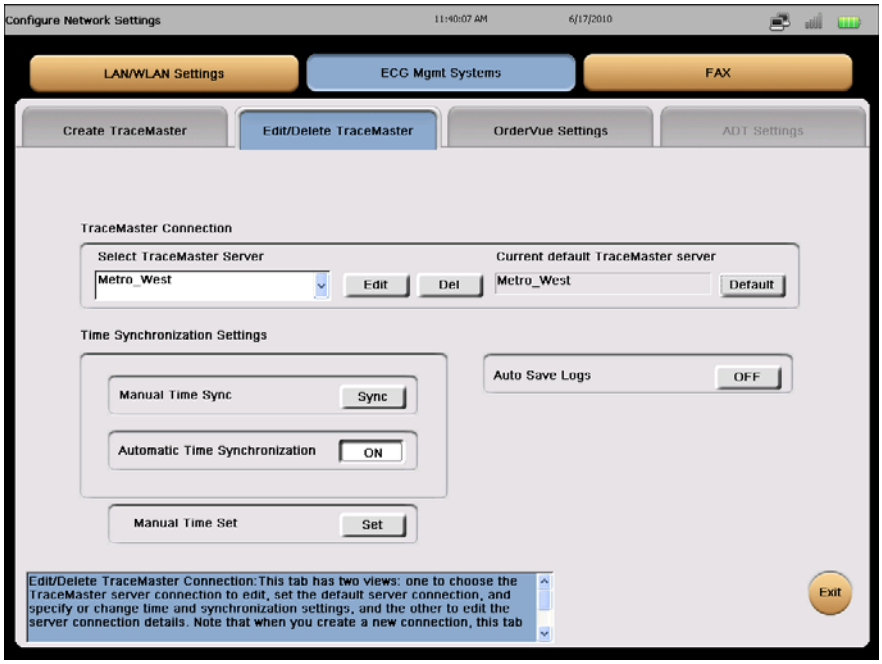
At any time, you can manually set the date and time on the cardiograph, or you can configure the cardiograph to automatically synchronize the date and time with a specified default TraceMaster server.

When the Time Sync feature is set to **Automatic**, every time the cardiograph goes into Standby, the system looks at when the time was last synchronized, and, if the following conditions are met, downloads the current time from the server and updates the cardiograph local time:

- The cardiograph enters Standby (power save)
- It has been 8 hours or more since the last Time Synchronization
- The battery is NOT low (the cardiograph is not emitting an alert sound and battery life is greater than 20%)
- The last Time Synchronization process was successfully completed
- The cardiograph does NOT exit Standby during the synchronization process
- The synchronizing server is up and running, and is properly configured

**NOTE** Manually setting the date and time on the cardiograph does not affect or delay an automatic time synchronization.

**Figure 3-1 Edit/Delete TraceMaster Connection tab and Time Synchronization Settings**




**To define time settings for the cardiograph:**

1 Ensure a default TraceMaster connection is selected to synchronize with. See “Setting the Default TraceMaster Server” on page 3-17.

2 Do any of the following:

| | |
|---|---|
| Synchronize the time to the server right now. | Touch **Sync** next to **Manual Time Sync**.<br>The cardiograph downloads the current date/time from the server and updates the cardiograph local date/time. |
| Enable automatic time synchronization. | Touch the **ON/OFF** button next to **Automatic Time Synchronization**.<br>When the button shows **ON**, it is enabled. |
| Manually set the time for the cardiograph (independent of the server). | Touch **Set** next to **Manual Time Set**.<br>The Date and Time Settings dialog box appears, where you set the date, time, and time zone. To manually synchronize with the server now, touch **Time Sync** within the calendar dialog box.<br>If automatic synchronization is enabled, the cardiograph will still synchronize with the server time when the conditions are met (page 3-18). |

3 Save your changes by touching **Exit**, and, when prompted to save, touch **Yes**.

You are returned to the Configuration Setup and Service Utilities screen.

# Editing TraceMaster Connection Settings

Once configured, you can edit TraceMaster connection settings, as well as change the default server for this cardiograph to connect to (page 3-17), and update the time settings (page 3-18).

**To change TraceMaster connection settings:**

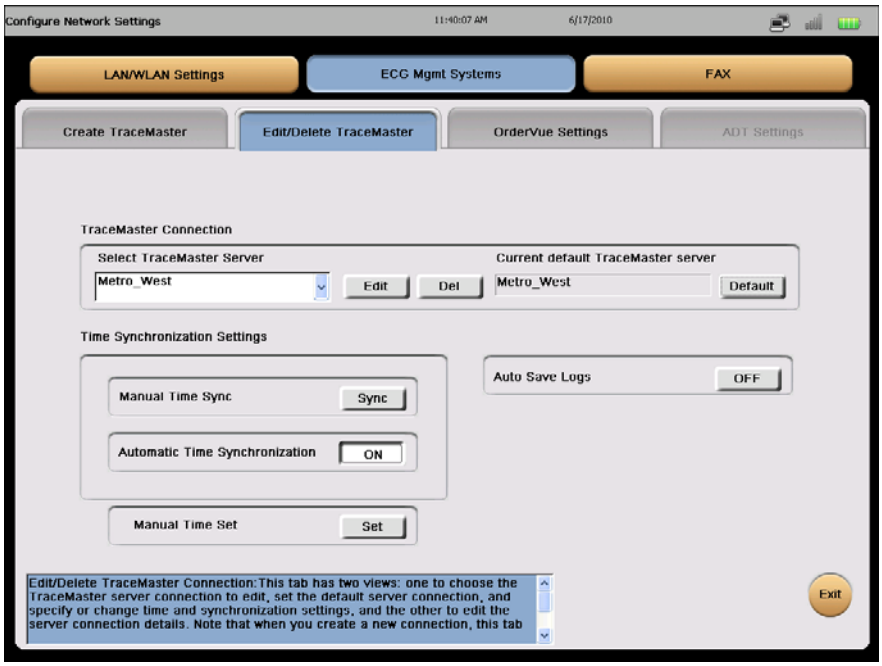
1 On the cardiograph toolbar, touch **Setup**.

The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **Configure ECG Network Settings**.

3 Touch the **ECG Mgmt Systems** tab, and then touch the **Edit/Delete TraceMaster** tab (Figure 3-1 on page 3-19).

4 In the **Select TraceMaster Server** list, touch the arrow to display the list of configured TraceMaster connections, then touch the desired entry to select it.




5 To change time settings, make your changes in the **Time Synchronization Settings** section of the screen. To change TraceMaster connection settings, touch **Edit**.

The full Edit/Delete TraceMaster Connection screen appears loaded with the settings assigned to the selected connection.

6 Make changes to the settings as necessary. To change the name of the server connection, edit the **TraceMaster Server** field.

7 When finished, touch **Save Settings** to save your changes.

Once the changes are saved, the cardiograph returns you to the **Edit/Delete TraceMaster Connection** tab.

4

# Configuring OrderVue Settings

The settings described in this chapter are applicable to the OrderVue order handling option that is installed on a TraceMaster server.

## About OrderVue Workflow

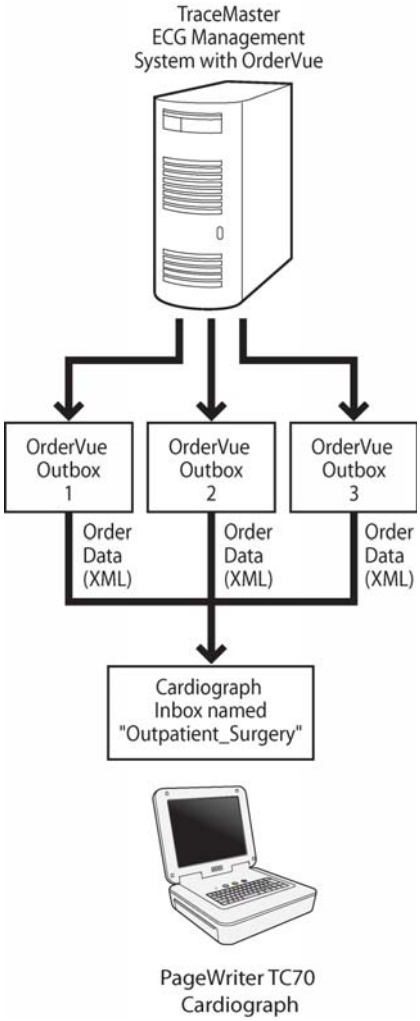
The OrderVue database resides on the TraceMaster server, and may include an optional ADT option that monitors HL7 ADT updates to existing patient orders.

When an order is entered into the HIS, it is associated with a specific ECG *area location code*. Once the order is received by OrderVue, the location code is mapped to a virtual orders *outbox* for classification purposes, to simplify retrieval. This mapping is performed as part of the original configuration of the OrderVue/TraceMaster system at your site.

Multiple location codes can be mapped to a single outbox. For example, the night shift might have responsibility for all orders originating on the 2nd and 3rd floors of your facility for a given day. Departments A, B, and C could have their orders all mapped to the outbox, Floor2-3, for easy retrieval by shift personnel.

On the cardiograph, you configure one or more *Worklists*, which are set to retrieve orders from one or more of the outboxes defined on the server, depending on your site's requirements for each cardiograph's primary area of use. A Worklist resides solely on the cardiograph, and may consist of several OrderVue outboxes. A cardiograph Worklist can be assigned any name that gives meaning to the cardiograph user, or provides meaning within a larger configured orders system.

**Figure 4-1 OrderVue Outbox to Cardiograph Order Worklist Configuration**




# OrderVue Configuration Overview

Briefly, configuring OrderVue settings on the cardiograph includes the following steps:

1. Ensure that all TraceMaster Connection settings are accurate and complete.
2. Test the connectivity between the cardiograph and the configured TraceMaster Connection. If it is successful, proceed to configuring order settings.
3. Select a TraceMaster Connection.
4. Map one or more order outboxes on the TraceMaster server to one or more OrderVue Worklists on the cardiograph. A single cardiograph Worklist may be mapped to receive data from several different outboxes. As part of this mapping, you specify:
   - Which orders are specified to be downloaded to the cardiograph; the orders can be sorted by status (new or all), priority (STAT or all others) and when the orders are due (the current day only, or the current day and the following day, or other options).

– Whether amended or updated orders downloaded to the cardiograph replace the existing orders, or are added to the list as a new order.
– Whether the assigned cardiograph user is permitted the ability to download orders only, or is permitted access to download and search for orders.

5 Save and name the Worklist.

6 Conduct a test orders search for the newly created Worklist.

7 Select general order settings, including settings for orders loaded onto the cardiograph from a USB memory stick. These orders originate from the WebSelect Utility application, which is only used with OrderVue.

Note that you can edit a configured Worklist any time after creation. See "Editing Worklist Settings" on page 4-11.

# Before You Begin

To ensure that Worklist creation proceeds smoothly and efficiently, have available:

- The location/identifying information for order outboxes or POCs from which you will be pulling orders to build Worklists on the cardiograph.
- The list of Worklists you wish to create. Mapping out the order locations/desired Worklist assignments ahead of time will save you time and effort.

  For example, the night shift might have responsibility for all orders originating on the 2nd and 3rd floors of your facility for a given day. Departments A, B, and C on these floors could have their orders all mapped to a cardiograph Worklist named **Floor2-3** for easy retrieval by shift personnel.

# Creating an OrderVue Worklist

Use this procedure for mapping order outboxes on the TraceMaster server to OrderVue Worklists on the cardiograph.

**NOTE** In the following procedure, the terms *Inbox* and *Worklist* are synonymous and are used interchangeably.

**To create an OrderVue Worklist:**

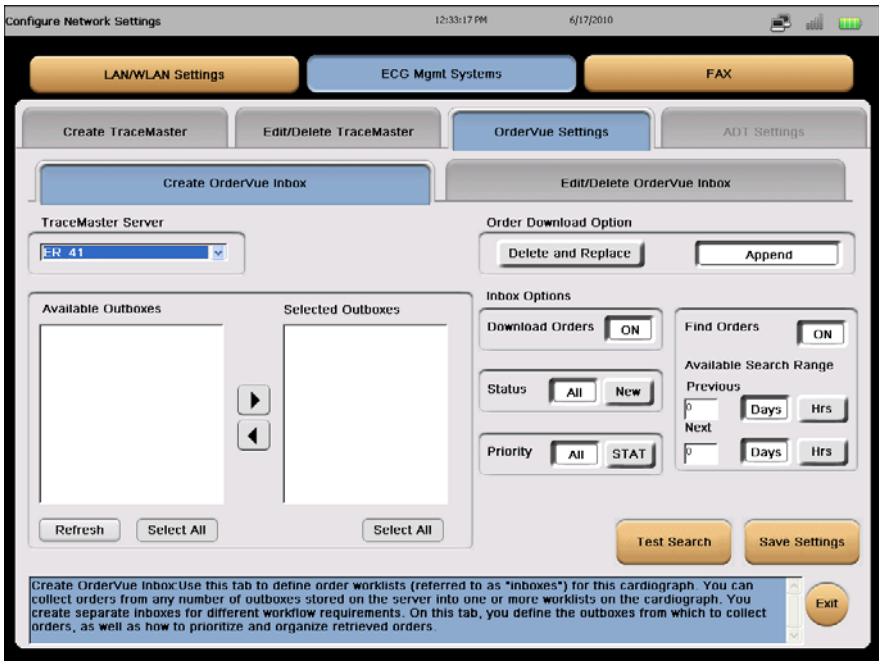
1 Have available the information listed in "Before You Begin" on page 4-3.

2 On the Main screen, touch **Setup**.

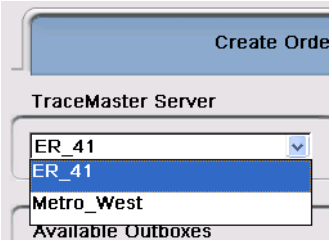
The Configuration Setup and Service Utilities menu appears.

3 On the menu, touch **Configure ECG Network Settings**.

**4** Touch the **ECG Mgmt Systems** button (top of screen), then touch the **OrderVue Settings** tab. The **Create OrderVue Inbox** screen appears.



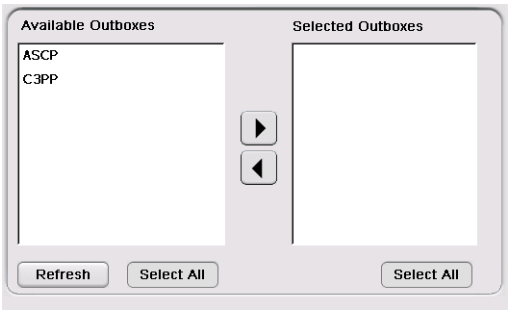

**5** Touch the arrow of the **TraceMaster Server** dropdown list, and select a configured TraceMaster Connection entry.




**6** Touch the **Refresh** button under **Available Outboxes** to retrieve the available OrderVue outboxes available on the selected server.

The Available Outboxes list shows the departments that generate orders.

The cardiograph connects to the server and retrieves all of the available entries, and displays them in the Available Outboxes list; this may take a few moments.This forms the list of outboxes from which you can pull orders.




**7** Once the list is refreshed, in the **Available Outboxes** list, touch one or more entries from which to collect orders for this Worklist. You can:

– Hold down the *Shift* key to select multiple entries.

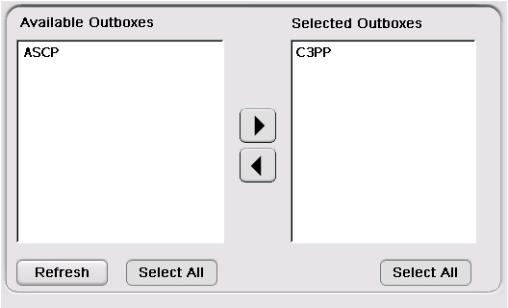
– Touch **Select All** to choose all of the entries.

**8** Once selected, touch the right arrow ( ) to move the entries to the **Selected Outboxes** list.

The Worklist you are defining will pull orders from these selected entries.

To remove entries from the **Selected Outboxes** list, select the entries to remove, and touch the left arrow ( ) to move them back to the **Available** list. To remove all of the entries from this Worklist and start over, touch **Select All** under the **Selected Outboxes** list, then touch the left arrow ( ).

In this example, only one entry was selected.



**9** Configure which orders to retrieve from the selected outboxes as follows:

| Field | Set as follows ... |
|---|---|
| Order Download Options | These options determine whether incoming orders overwrite the existing Worklist or whether they are appended to the end of the Worklist. |
| Delete and Replace | Touch this option to have all existing orders deleted from the Worklist each time that orders are downloaded. |
| Append | Touch this option to have new or updated orders added to the bottom of the Worklist (no existing orders are deleted). This is the default setting. |
| Download Orders | When enabled, allows orders to be downloaded to this cardiograph. The option is enabled when the button shows **ON** (the default). |
| Status | These options determine which orders are downloaded to this Worklist. |
| All | All orders are downloaded to the Worklist, regardless of their status. This is the default setting. |
| New | Only orders that are new to the system and have not been previously downloaded to the cardiograph are downloaded. |
| Priority | These options determine what priority orders are downloaded to this Worklist. |
| All | All orders are downloaded, regardless of their priority. |
| STAT | Only orders that are marked as STAT (urgent) are downloaded to this Worklist. |
| Find Orders | When enabled, allows users to search for orders directly from the cardiograph. The option is enabled when the button shows **ON** (the default). |

| Field | Set as follows ... |
|---|---|
| Available Search Range | This option designates the originating time span for pending orders downloaded to this Worklist. This range can be set in units of hours or days.<br><br>The maximum range that can be set for is from up to 99 hours or days previous to the current time or date, or 99 hours or days ahead of the current time or date.<br><br>For example, to designate the download of orders that originate from a timespan of yesterday to up to 9 hours in the future, enter **1** in the **Previous** field and select **Days** as the unit. Then, enter **9** into the **Next** field and select **Hours** as the unit.<br><br>These values also determine the time or date range in which users can search for orders (if the search feature is enabled).<br><br>**NOTE**: Entering **0** into either the **Previous** or **Next** fields disables that specific field when an order search is conducted on the cardiograph. Entering **0** in both fields removes the time range entirely from the search criteria. |
| Previous | Time, set in hours or days, prior to the current date, during which to search for orders. |
| Next | Time, set in hours or days, after the current date, during which to search for orders. |

**10** When finished, save the Worklist by touching **Save Settings**.

The Save Inbox dialog box appears, prompting you to name the Worklist. The name you specify appears in the **Select OrderVue Inbox** list on the **Edit/Delete OrderVue Inbox** tab.

**11** Type the name to identify this Worklist, then touch **OK**.

You are now ready to test the Worklist settings.

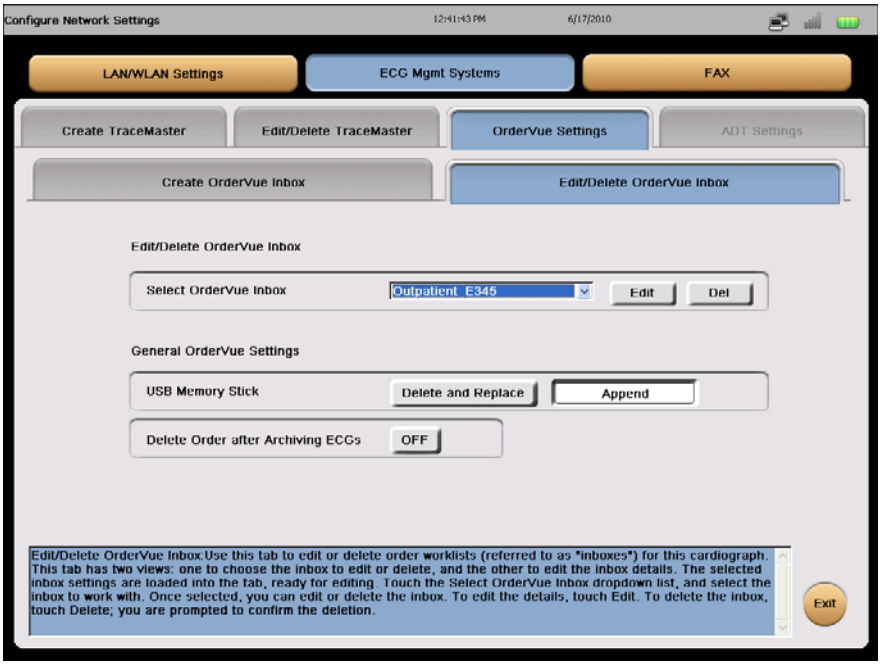
## Testing Order Worklist Settings

After you have defined and named a Worklist, test that it retrieves the desired set of orders, as described in the following procedure.

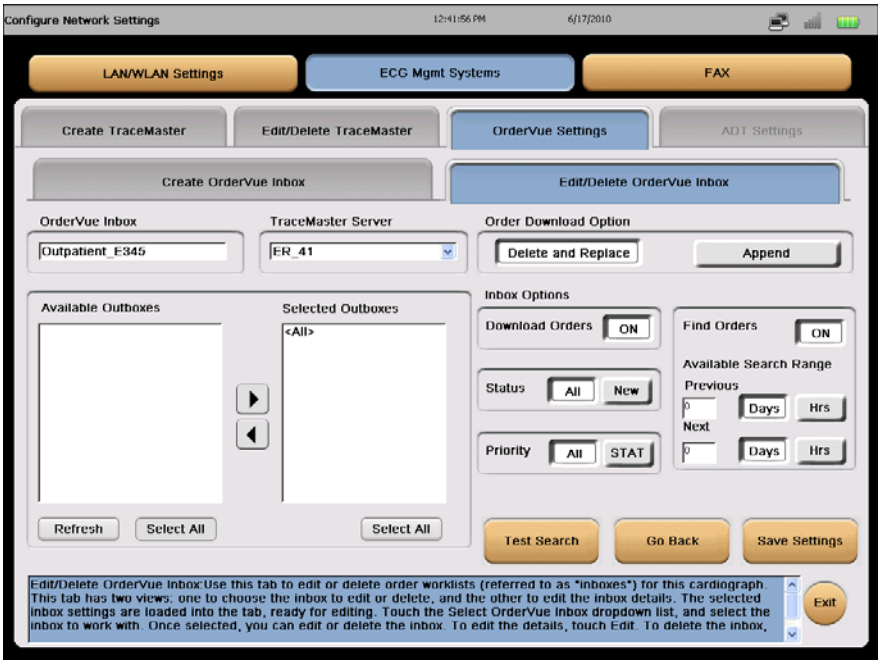
**NOTES** You can also test an individual Worklist connection when configuring a Worklist on the *Create OrderVue Inbox* screen by selecting a Worklist and touching **Test Search**, then following the steps specified here to retrieve orders.

**To test OrderVue Worklist settings:**

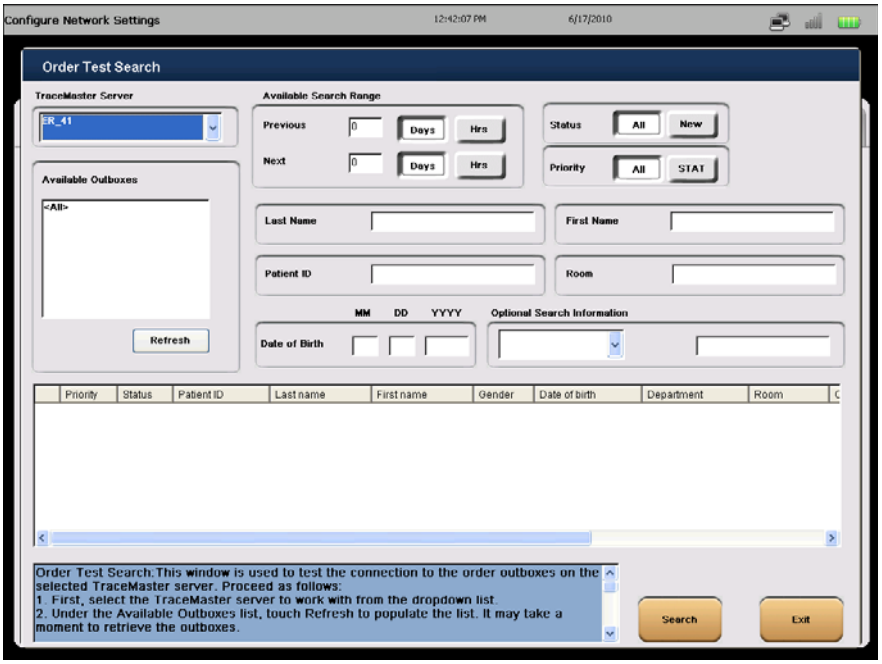
1 On the **OrderVue Settings** tab, touch the **Edit/Delete OrderVue Inbox** tab.


Configure Network Settings
12:41:43 PM
6/17/2010
LAN/WLAN Settings
ECG Mgmt Systems
FAX
Create TraceMaster
Edit/Delete TraceMaster
OrderVue Settings
ADT Settings
Create OrderVue Inbox
Edit/Delete OrderVue Inbox
Edit/Delete OrderVue Inbox
Select OrderVue Inbox
Outpatient E345
Edit
Del
General OrderVue Settings
USB Memory Stick
Delete and Replace
Append
Delete Order after Archiving ECGs
OFF
Edit/Delete OrderVue Inbox:Use this tab to edit or delete order worklists (referred to as "inboxes") for this cardiograph. This tab has two views: one to choose the inbox to edit or delete, and the other to edit the inbox details. The selected inbox settings are loaded into the tab, ready for editing. Touch the Select OrderVue Inbox dropdown list, and select the inbox to work with. Once selected, you can edit or delete the inbox. To edit the details, touch Edit. To delete the inbox, touch Delete; you are prompted to confirm the deletion.
Exit

2 In the **Select OrderVue Inbox** list, touch the arrow to display the list of configured Worklists, then touch the desired entry to select it, and touch **Edit**. The selected Worklist settings are displayed in the Edit/Delete OrderVue Inbox screen.




**3** Touch the **Test Search** button. The Order Test Search window appears.




The **TraceMaster Server** field shows the server on which the Worklist is configured.

**4** Touch **Refresh** under the **Available Outboxes** list. The available outboxes on the selected server are retrieved and appear in the list.

**5** Touch a specific entry to select it for the test.

6 Enter search information into the applicable fields. This information will be used to search for orders. Use the wildcard character (*) to expand the search criteria. Enter as much information as necessary to retrieve an order.

7 When done, touch **Search**. Orders that match the entered search criteria appear on the screen. If the test is successful, you can proceed to other configuration tasks.

If the test is not successful and no orders appear on the screen, try entering more specific search information, or consult your network administrator.

You are now ready to set any additional order-related settings using the Edit/Delete OrderVue Inbox screen. You can also edit an existing Worklist using this screen.

# Setting General OrderVue Options

Follow the procedure below to specify settings that apply to all cardiograph Worklists, and to all orders that are manually downloaded to the cardiograph using a USB memory stick.

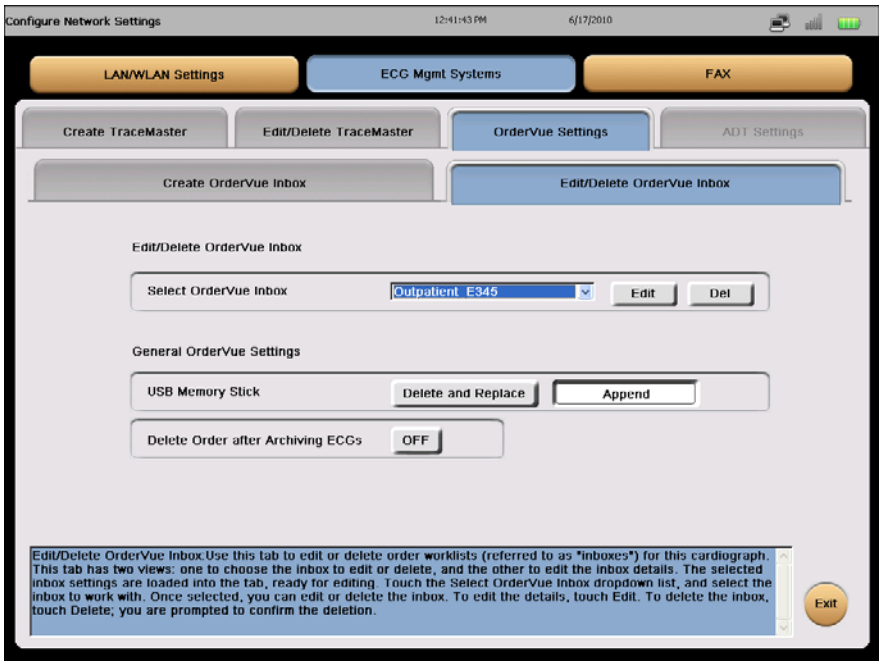
Orders that are loaded on the cardiograph from a USB memory stick originate from the OrderVue WebSelect Utility application. The OrderVue WebSelect Utility application is *only* used with OrderVue. For information on the OrderVue WebSelect Utility, see the *OrderVue Web Select Utility Quick Help Card*, available as a download from the Philips InCenter site (incenter.medical.philips.com).

**To specify general order settings:**

1 Follow steps 2 through 4 on page 4-3.

2 Touch the **Edit/Delete OrderVue Inbox** tab.

The Edit/Delete OrderVue Inbox screen appears.


Configure Network Settings
12:41:43 PM
6/17/2010
LAN/WLAN Settings
ECG Mgmt Systems
FAX
Create TraceMaster
Edit/Delete TraceMaster
OrderVue Settings
ADT Settings
Create OrderVue Inbox
Edit/Delete OrderVue Inbox
Edit/Delete OrderVue Inbox
Select OrderVue Inbox
Outpatient_E345
Edit
Del
General OrderVue Settings
USB Memory Stick
Delete and Replace
Append
Delete Order after Archiving ECGs
OFF
Edit/Delete OrderVue Inbox:Use this tab to edit or delete order worklists (referred to as "inboxes") for this cardiograph. This tab has two views: one to choose the inbox to edit or delete, and the other to edit the inbox details. The selected inbox settings are loaded into the tab, ready for editing. Touch the Select OrderVue Inbox dropdown list, and select the inbox to work with. Once selected, you can edit or delete the inbox. To edit the details, touch Edit. To delete the inbox, touch Delete; you are prompted to confirm the deletion.
Exit

3 Set options for downloading orders from a memory stick as follows:

| Field | Set as follows ... |
|---|---|
| USB Memory Stick | Set these options to determine how orders are added to the USB memory stick. |
| Delete and Replace | Touch this button to delete all existing orders that have been previously loaded on the cardiograph from a USB memory stick each time that new orders are loaded from a USB memory stick. |
| Append | Touch this button to add the new orders to the list of orders downloaded from a USB memory stick (no existing orders are deleted). |

4 Set the desired **Delete Order after Archiving the ECG** option to **ON** or **OFF**.

This option affects all orders downloaded to the cardiograph and applies to all Worklists. When enabled (set to **ON**, the default setting), the cardiograph automatically deletes an order from a Worklist once the ECG associated with the order is taken and saved to the Archive.

5 To edit an existing Worklist, see the instructions provided in "Editing Worklist Settings" on page 4-11.

6 When finished, save the settings by touching **Exit**.

The Save Settings dialog box appears, prompting you to save your settings.

7 Touch **Yes**.

Order configuration is now complete.

# Editing Worklist Settings

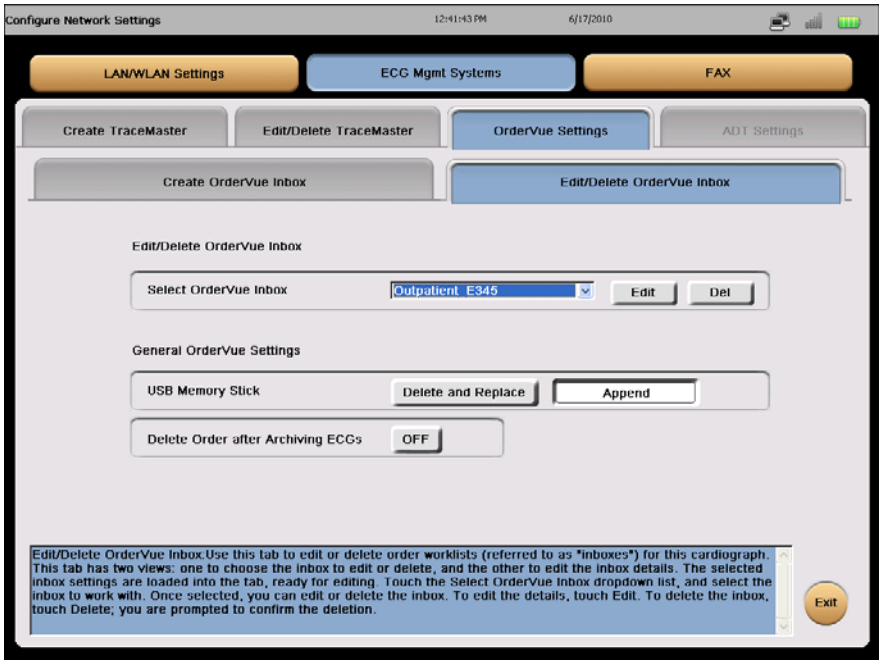
The following procedure describes how to edit a configured OrderVue Worklist.

**To edit settings for an existing OrderVue Worklist:**

1 Follow steps 2 through 4 on page 4-3.

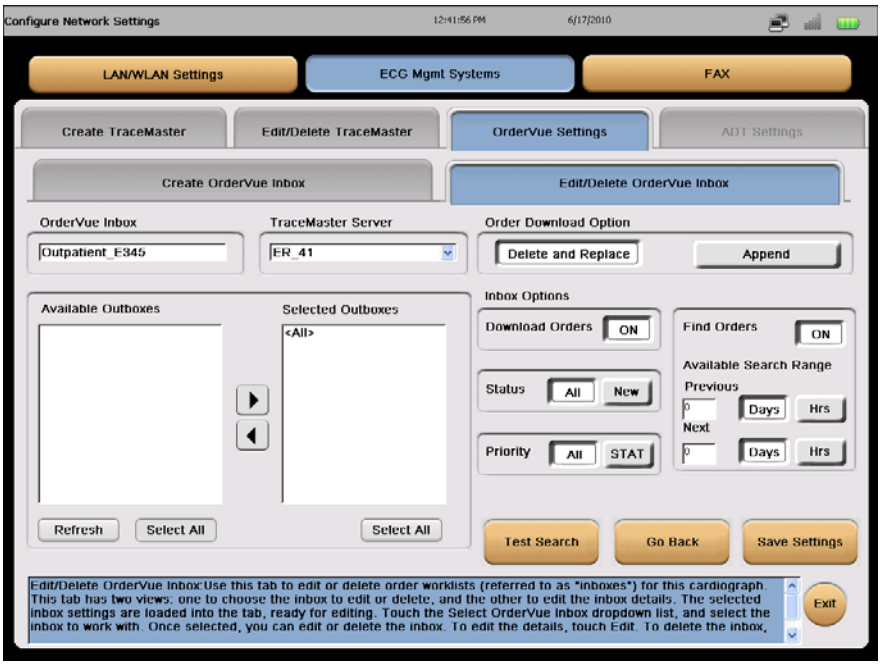
2 Touch the **Edit/Delete OrderVue Inbox** tab.

The Edit/Delete OrderVue Inbox screen appears.


Configure Network Settings
12:41:43 PM
6/17/2010
LAN/WLAN Settings
ECG Mgmt Systems
FAX
Create TraceMaster
Edit/Delete TraceMaster
OrderVue Settings
ADT Settings
Create OrderVue Inbox
Edit/Delete OrderVue Inbox
Edit/Delete OrderVue Inbox
Select OrderVue Inbox
Outpatient_E345
Edit
Del
General OrderVue Settings
USB Memory Stick
Delete and Replace
Append
Delete Order after Archiving ECGs
OFF
Edit/Delete OrderVue Inbox:Use this tab to edit or delete order worklists (referred to as "inboxes") for this cardiograph. This tab has two views: one to choose the inbox to edit or delete, and the other to edit the inbox details. The selected inbox settings are loaded into the tab, ready for editing. Touch the Select OrderVue Inbox dropdown list, and select the inbox to work with. Once selected, you can edit or delete the inbox. To edit the details, touch Edit. To delete the inbox, touch Delete; you are prompted to confirm the deletion.
Exit

**3** Touch the arrow of the **Select OrderVue Inbox** dropdown list, and select a configured Worklist entry; then touch **Edit**.

The settings for the selected Worklist appear on the screen.




**4** Edit the settings as necessary.

To change the name of the Worklist, edit the **OrderVue Inbox** field. You can add/delete outboxes from which to retrieve orders, change delete/append settings, and change any of the other settings, as needed.

5 If you added outboxes from which to retrieve orders, be sure to test the connection to each outbox by touching **Test Search**. For details, see “Testing Order Worklist Settings” on page 4-8.

6 When finished, save the Worklist by touching **Save Settings**. The Save Inbox dialog box appears, prompting you to save your changes.

7 Touch **Yes**.

Configuration is complete.

5

# Configuring PDF Export and Remote PC Settings

## TC Cardiograph PDF Export and Remote PC Features

The PageWriter TC cardiographs with installed software version A.04.01 and higher can export ECGs as PDF files from the cardiograph to a specified shared folder on any networked PC or server. The cardiograph can also transmit *Log files* and *Custom Settings files* (that contain all configuration information) to this same shared folder. A shared folder is created on the networked PC or server, and PDF files, as well as Log files and Custom Settings files transmitted from the cardiograph are saved to this individual shared folder. The shared folder also may be created on a TraceMaster or third party (non-Philips) server. Additionally, Customer Settings files, and software updates saved to the shared folder can be transmitted to the cardiograph, which greatly accelerates the configuration and software update processes.

**NOTES** ECGs can also be saved as PDF files directly to a USB memory stick from the Archive, and the PDF files can then be loaded onto a PC and viewed using any standard PDF viewer software. Log files and Custom Settings files can also be saved to a USB memory stick. Saving files to a USB memory stick requires no special configuration on the cardiograph.

You can save Log files to a USB memory stick at any time by pressing **Ctrl + Alt + O** from any screen. Ensure the USB memory stick is firmly inserted into the USB connector before saving the Log file.

The PDF Export and Remote PC features cannot be used with modem transmission.

### About Log Files

Log files continuously record operating information about the cardiograph including events, errors, application integrity, battery power levels, memory use, test results, and user events related to ECG processing, along with the time and date of each event. These log files are useful in troubleshooting a technical issue with the cardiograph. For more information on Log files, see the *PageWriter TC Cardiograph Service Manual*. For information on using the Log files to troubleshoot a technical issue with the cardiograph, contact the nearest Philips Response Center.

### Configuration Overview

The following steps are performed in the order listed below to configure the cardiograph to transmit PDF files, and Log and Custom Settings files to a networked PC or server.

1 Create a shared folder on your networked PC or server that will be used to store ECG PDF, Log, Custom Settings, and software update files. Assign user access rights (user name and password) to this shared folder that you will enter at the cardiograph.

2 If necessary, configure a wired or a wireless connection from the cardiograph to the networked PC or server, see “Configuring Network Connectivity” on page 2-1.

3 Configure the networked PC or server as an **ECG Management System Connection** with the **PDF Export** option enabled. See the next procedure “Configuring a PDF Export and Remote PC Connection” on page 5-2.

4 Test the new PDF export connection from the Archive.

# Configuring a PDF Export and Remote PC Connection

Follow the steps in this procedure after creating a shared folder on your networked PC or server to which you want to transmit files. Also, ensure that all network connectivity (LAN or Wireless LAN) settings for the cardiograph are accurate and complete.

**To configure a PDF Export and Remote PC Connection:**

1 Touch the **Setup** button on the toolbar. The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **ECG Network Settings**. The Configure Network Settings screen appears.

3 Touch the **ECG Mgmt Systems** button (top center of screen). The ECG Management Setup screens appear, and the **Create TraceMaster** tab is selected (top left corner of screen, highlighted in blue).

4 Under **System Type**, touch the **ECG Management** button.

5 Under **Connectivity Settings**, touch the **Server Settings** button.

6 Under **Server Settings**, leave the **Server URL** field blank.

7 Enter the user name that has rights to the shared folder on the networked PC or server into the **User Name (EMS)** field.

8 Enter the password associated with the entered user name into the **Password** field.

9 Enter the network computer or server name, and the shared folder name separated by a back slash into the **Computer Name** field. For example, enter **computername\ECG_PDF_export** into this field.

**NOTE** The **Enable SSL**, **Compression**, and **Encryption** features are not supported with the PDF Export option.

10 Under **ECG Mgmt Version** (lower right corner of screen) touch the dropdown to open the list. Touch **PDF Export** to select it.

11 Touch the **Save Settings** button (lower right corner of screen). A window appears asking you to provide a name for the new connection. Enter a name and then touch **OK**. This name will appear in the Archive when selecting the connection for ECG PDF

transmission, and will appear on the **Save/Load Settings** screen when applying configuration settings, and will appear in the **Select Remote Computer** dropdown under **Remote Installation** when applying software updates. This name will also appear under the **Edit/Delete TraceMaster** tab on the **Setup** screen if editing settings associated with this connection.

**NOTE** Although the connection is labeled as a TraceMaster Connection on the **Save TraceMaster connection** window, this connection is not related to any TraceMaster operation.

# Editing Settings

You can edit the settings associated with the connection at any time from the Setup screens.

**To edit settings:**

1. Touch the **Setup** button on the toolbar. The Configuration Setup and Service Utilities menu appears.
2. On the menu, touch **ECG Network Settings**. The Configure Network Settings screen appears.
3. Touch the **ECG Mgmt Systems button** (top center of screen). Touch the **Edit/Delete TraceMaster** tab.
4. Under **TraceMaster Connection**, touch the dropdown under **Select TraceMaster Server** to display the list of available connections.
5. Touch a connection to select it. Touch the **Edit** button. The settings associated with the selected connection appear. Edit the settings as necessary.
6. When done, touch the **Save Settings** button (bottom right of screen) to save the edited settings. To exit the screen without saving the edits, touch the **Go Back** button.

# Transmitting ECGs as PDF Files from the Archive

Follow the procedure below to transmit ECGs as PDF files from the Archive to the shared folder on the remote PC or server.

**To export ECGs as PDF files:**

1. Touch the **Archive** button on the toolbar. The number on the button (**10**) indicates how many ECGs are currently saved to the **Main Archive** (internal cardiograph storage).
2. Ensure that **Main Archive - ID Complete** is selected (top left of screen). This directory contains all ECGs that may be transferred from the cardiograph.

**NOTE** Only ECGs that contain all required patient information may be transferred from the cardiograph. Required patient information fields are specified by your individual facility.

3. Touch an ECG displayed in the directory to select it for transfer. A selected ECG is highlighted in blue.
4. When all ECGs have been selected, touch the **Transfer Destination** dropdown (top center of screen). Select the applicable PDF Export transfer destination from the dropdown list.

5 Touch the **Transfer** button (lower right corner of screen) to transfer the selected ECGs as PDF files to the specified destination.

# Transmitting or Receiving Log and Custom Setting Files

Follow the procedure below to transmit Log files, or to transmit or receive Custom Setting files to or from the cardiograph to the shared folder on the remote PC or server.

**NOTE** You can save Log files to a USB memory stick at any time by pressing **Ctrl + Alt + O** from any screen. Ensure the USB memory stick is firmly inserted into the USB connector before saving the Log file.

**To transmit or to receive log and custom settings files:**

1 Touch the **Setup** button on the toolbar. The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **Configure Clinical Default Settings**.

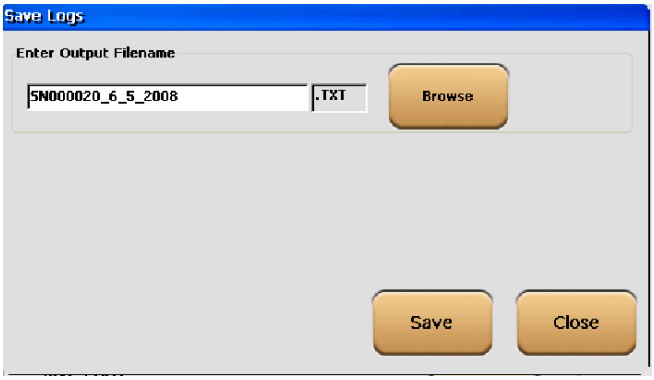
3 Touch the **Save/Load** (**Settings**) button (upper right corner of screen).

4 To transmit a Custom Settings file to the shared folder, touch the **Save Custom Settings** dropdown. To transmit a Log file, touch the **Save Logs** dropdown. Or, to load settings from a shared folder, touch the **Load Custom Settings** dropdown.

5 Select the remote PC or server connection that contains the shared folder.

6 Touch the **Save** or the **Load** button. The applicable Save or Load window appears.

**Figure 5-1 Save Logs window**




7 To save the files to the default file name and location, proceed to step 10.

8 To change the file name or location, touch the **Browse** button. The Select file directory screen appears.

9 Touch the **New Folder** button (upper left corner of window) to create a folder for the files and specify a different file name, if desired. Touch the **OK** button.

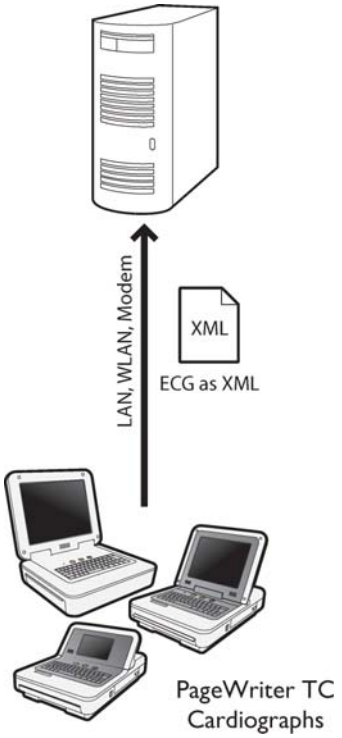
10 Touch the **Save** button to save the log files or custom settings files to the specified file name and location, or touch the Load button to load files from the specified location.

# 6

# Configuring Third Party ECG Management System Settings

The PageWriter TC cardiographs can communicate over an Ethernet LAN, wireless LAN, or modem with any third party (non-Philips) ECG management system that can accept completed ECGs in Philips XML format. For information on the Philips ECG XML Schema, see “Philips ECG XML Information” on page 1-7. You can also configure the cardiograph to transmit Log files and Custom Settings files (that contain all configuration information) to a specified shared folder on a third party server. For information see, “Configuring PDF Export and Remote PC Settings” on page 5-1.

**Figure 6-1 PageWriter TC Cardiograph to Third Party (non-Philips) ECG Management System Workflow**



# About Configuring Third Party (non-Philips) Connections

Configuring connectivity between a PageWriter TC cardiograph and a third party ECG management system involves multiple steps, as described in Table 6-1.

**Table 6-1 Configuring Third Party (non-Philips) Connectivity**

| Step | Description | For more information, see... |
|---|---|---|
| 1 | Configure Wireless LAN Settings (if necessary); test wireless LAN connectivity | "Configuring Wireless LAN Settings" on page 2-12. |
| 2 | Configure wired Ethernet LAN settings (if necessary); test LAN connectivity | "Configuring Cardiograph Network Settings" on page 2-4. |
| 3 | Configure third party server settings, test connectivity | "Configuring a Third Party ECG System Connection" on page 6-4. |

## About Philips ECG XML Versions

ECG data is stored on the cardiograph, and then transmitted to the selected server in a pre-defined Philips ECG XML format. Due to data limitations with the associated XML schema version, there are restrictions on the supported algorithm version(s) and the ability to transmit ECG data in an extended 16-lead format to a remote server. The XML schema version is selected under the **TraceMaster Server Version** dropdown list located under the **Create TraceMaster Connection** tab.

**NOTE** Even though the Setup screens in the following procedure display **TraceMaster** or **TraceMaster Connection**, the settings are applicable to a third party ECG management system.

Table 6-1 provides a listing the available XML schema versions, along with the supported algorithm version, and available support for 16-lead data transmission for each XML schema version.

**Table 6-1 XML Schema Version Compatability**

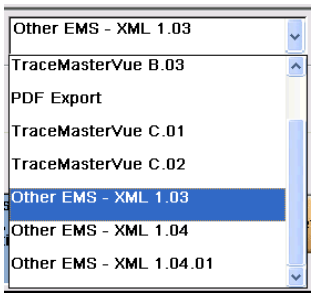
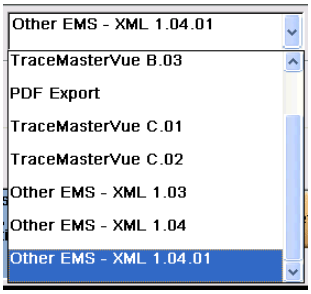
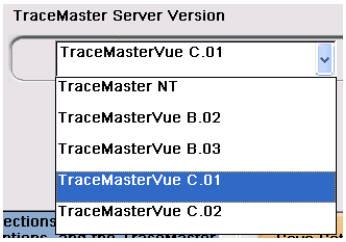
| Selected Philips XML Schema Version | XML Schema Version | Supported Algorithm Version(s) | Available 16-Lead Support |
|---|---|---|---|
| **Other EMS - XML 1.03**   | 1.03 | ■ Philips 12-Lead Algorithm, version PH090A<br>■ Only 12 leads are analyzed with algorithm version PH090A; no analysis is provided for extended leads | If a 15 or 16-lead ECG is transferred to a remote server, the additional ECG data for the right side precordial or posterior leads is deleted, and the ECG is transferred in standard 12-lead format. |

**Table 6-1 XML Schema Version Compatability** *(continued)*

| Selected Philips XML Schema Version | XML Schema Version | Supported Algorithm Version(s) | Available 16-Lead Support |
|---|---|---|---|
| **Other EMS - XML 1.04**<br>  | 1.04 | ■ Philips 12-Lead Algorithm, version PH090A<br>■ Only 12 leads are analyzed with algorithm version PH090A; no analysis is provided for extended leads | Custom extended lead configurations are not supported by this XML version. Only ECGs that use the specified Posterior, Balanced, or Pediatric lead configurations are supported (see Table 3-2 on page 3-8). |
| **Other EMS - XML 1.04.01**<br>  | 1.04.01 | ■ Philips 12-Lead Algorithm, version PH090A<br>■ Only 12 leads are analyzed with algorithm version PH090A; no analysis is provided for extended leads<br>■ Philips DXL 16-Lead ECG Algorithm, version PH100B; this version provides full interpretation for up to 16 leads | Custom extended lead configurations are not supported by this XML version. Only ECGs that use the specified Posterior, Balanced, or Pediatric lead configurations are supported (see Table 3-2 on page 3-8). |

## About Security

The cardiograph offers the Secure Sockets Layer (SSL) encryption protocol for the secure transmission of ECG data between the cardiograph and a remote server.

**NOTE** To fully enable SSL encryption, you must enable it **both** on the cardiograph and on the remote server that the cardiograph will connect to.

# Configuring a Third Party ECG System Connection

The cardiograph transmits ECG data in a specified XML format to a remote server using a wired or wireless network connection, or using a modem connection. For details, see:

- “Configuring a Network Third Party Connection” on page 6-4.
- “Configuring a Third Party Modem Connection” on page 6-7.

## Configuring a Network Third Party Connection

You can configure a wireless LAN or Ethernet LAN connection to transfer data between the cardiograph and a third party system.

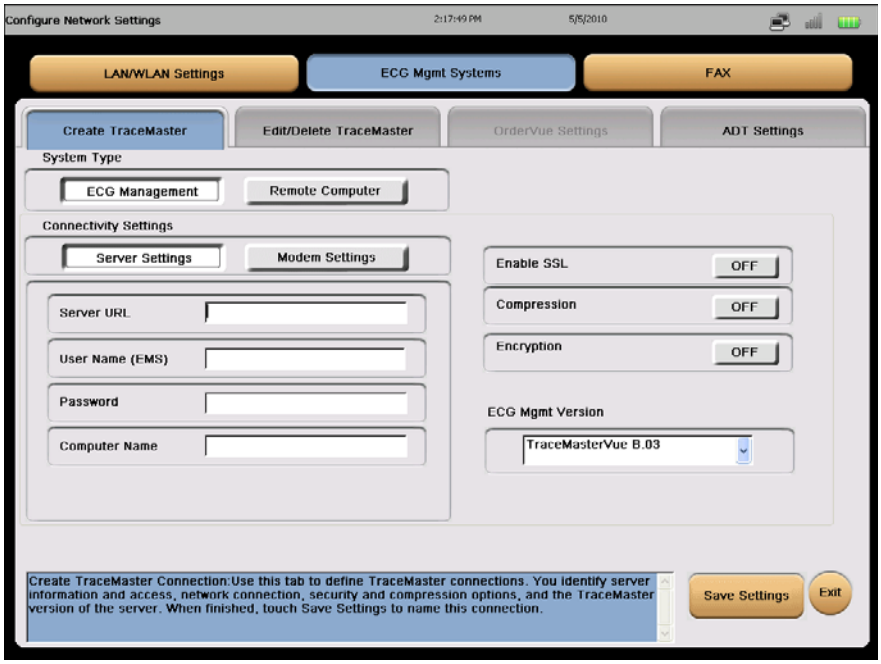
**NOTE** Even though the Setup screens in the following procedure display **TraceMaster** or **TraceMaster Connection**, the settings are applicable to a third party ECG management system.

**To configure a network-connected third party connection:**

1 On the cardiograph toolbar, touch **Setup**. The Configuration Setup and Service Utilities menu appears.

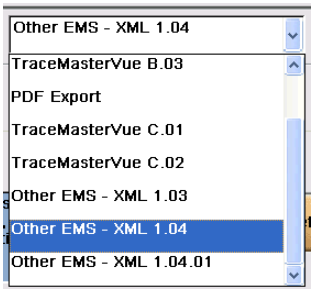
2 On the menu, touch **Configure ECG Network Settings**. The **Wire Network** tab appears.

3 Touch the **ECG Mgmt System** button. The **Create TraceMaster** tab appears, with **Server Settings** selected by default.



**4** Enter data into the fields on the screen as follows:

| Field | Set as follows... |
|---|---|
| Server URL | Type the IP address or the Computer Name of the third party server, using the following format.<br>http://<*IP Address*>/<br>Replace <*IP Address*> with the IP of the server to connect to, or with the Computer Name.<br>A valid URL address is, for example:<br>http://10.101.2.42/ |
| User Name (EMS) | Type a valid user account that has permission to log into the server. |
| Password | Type the password associated with the user name. |
| Computer Name | This field is only used when configuring a remote PC or server for cardiograph connectivity when using the PDF Export feature. For more information, see “Configuring PDF Export and Remote PC Settings” on page 5-1. |
| Enable SSL | Touch the **ON/OFF** button to enable or disable the Secure Socket Layer (SSL) encryption.<br>If enabled on the cardiograph, you must also enable SSL on the server; otherwise, ECGs will not be transferred.<br>**NOTE:** If you are using SSL encryption, you do not need to enable the separate Encryption option (below). |
| Compression | Touch the **ON/OFF** button to enable or disable lossless ECG compression.<br>This option enables/disables compression of ECGs for transfer to remote server. Compressing ECGs results in shorter transmission times. An uncompressed ECG is generally around 220 Kb; compressed, around 40 Kb.<br>When enabled, ECGs are compressed using Zlib, lossless compression. Upon receipt on the remote server, the ECG is uncompressed. |

| Field | Set as follows... |
|---|---|
| Encryption | Touch the **ON/OFF** button to enable or disable data encryption.<br><br>Encryption protects patient privacy. This option enables/disables encryption of ECGs to ensure secure transmission to remote servers. Upon transmission of ECGs to the remote server, the cardiograph uses a 40-bit encryption key. Upon receipt on the remote server, the ECG file is decrypted prior to storage.<br><br>When enabled, data is encrypted.<br><br>**NOTE:**<br><br>■ When ENABLE SSL is selected on the cardiograph, as well as on the remote server, you do not need to enable additional encryption by selecting this option. |
| XML Version (found under the **TraceMaster Server Version** dropdown list) | Select the XML version from the dropdown list. For more information on the available XML versions, see "About Philips ECG XML Versions" on page 6-2.<br><br>  |

5 Touch **Save Settings** to save the connection.

The Save TraceMaster Connection dialog box appears, prompting you to name the server connection. The name you specify is what will appear in the Archive screen dropdown list on the cardiograph when ECGs are transferred from the cardiograph to this remote server.

6 Type the name to identify this remote server, then touch **OK**.

The site is saved, and the **Edit/Delete TraceMaster Connection** screen appears, with the newly added third party connection displayed in the server list.

You can now continue to configure this server as follows:

- Test the connection (page 6-10).
- Set the default server connection to use for this cardiograph (page 6-9).

# Configuring a Third Party Modem Connection

The cardiograph can transmit ECG data to a third party server using the optional modem.

**NOTE** Even though the Setup screens in the following procedure display **TraceMaster** or **TraceMaster Connection**, the settings are applicable to a third party ECG management system.

**WARNING** **Never connect the modem card to a phone line when the cardiograph is connected to a patient.**

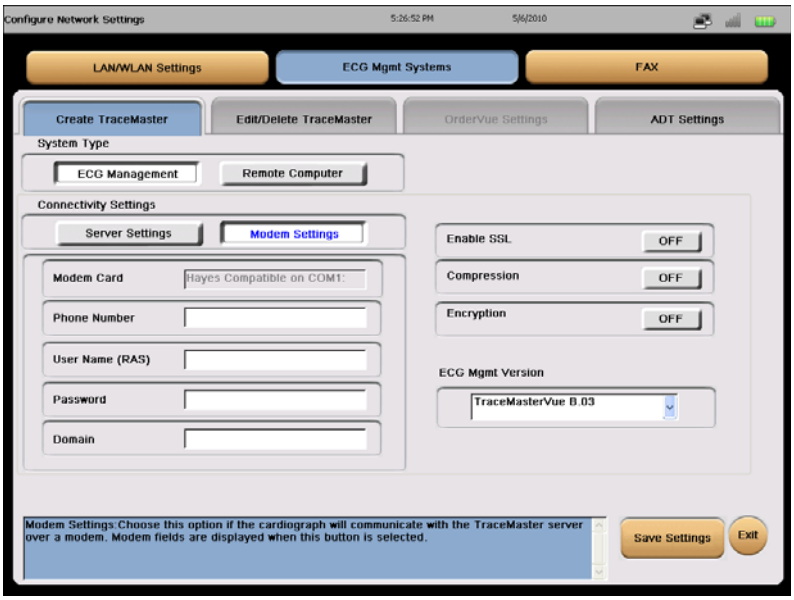
**To configure a third party connection with a modem:**

1 On the cardiograph toolbar, touch **Setup**.
The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **Configure ECG Network Settings**. The **Wire Network** tab appears.

3 Touch the **ECG Mgmt Systems** button (top of screen). The **Create TraceMaster** tab appears, with **Server Settings** selected by default.

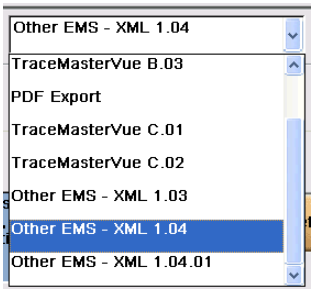
4 Touch **Modem Settings**.




5 Specify fields as follows:

| Field | Set as follows... |
|---|---|
| Modem Card | Read-only field showing the installed modem card. |
| Phone Number | Type the modem telephone number. |
| User Name (RAS) | Type a valid user account that has permission to log into the server. |
| Password | Type the password associated with the user name. |

| Field | Set as follows... |
|---|---|
| Domain | The computer name of the server. Required for modem connection.<br>The domain is also specified in the User Name field. |
| Enable SSL | Touch the **ON/OFF** button to enable or disable the Secure Socket Layer (SSL) encryption.<br>If enabled on the cardiograph, you must also enable SSL on the server; otherwise, ECGs will not be transferred.<br>**NOTE**: If you are using SSL encryption, you do not need to enable the separate Encryption option (below). |
| Compression | Touch the **ON/OFF** button to enable or disable lossless ECG compression.<br>This option enables/disables compression of ECGs for transfer to remote server. Compressing ECGs results in shorter transmission times. An uncompressed ECG is generally around 220Kb; compressed, around 40Kb.<br>When enabled, ECGs are compressed using Zlib, lossless compression. Upon receipt on the remote server, the ECG is uncompressed. |
| Encryption | Touch the **ON/OFF** button to enable or disable data encryption.<br>Encryption protects patient privacy. This option enables/disables encryption of ECGs to ensure secure transmission to remote servers. Upon transmission of ECGs to the remote server, the cardiograph uses a 40-bit encryption key. Upon receipt on the remote server, the ECG file is decrypted prior to storage.<br>When enabled, data is encrypted.<br>**NOTE**: When ENABLE SSL is selected on the cardiograph, as well as on the remote server, you do not need to enable additional encryption by selecting this option. |

| Field | Set as follows... |
|---|---|
| XML Version (found under the **TraceMaster Server Version** dropdown list) | Select the XML version from the dropdown list. For more information on the available XML versions, see “About Philips ECG XML Versions” on page 6-2.<br>  |

6 Type the name to identify this remote server, then touch **OK**.

**NOTE** Be sure there are no spaces in the server name; spaces prevent the modem from connecting to the server.

The site is saved, and the **Edit/Delete TraceMaster Connection** screen appears, with the newly added third party connection displayed in the server list.

You can now continue to configure this server as follows:

- Test the connection (page 6-10)
- Set the default server connection to use for this cardiograph (page 6-9)

## Setting the Default Server

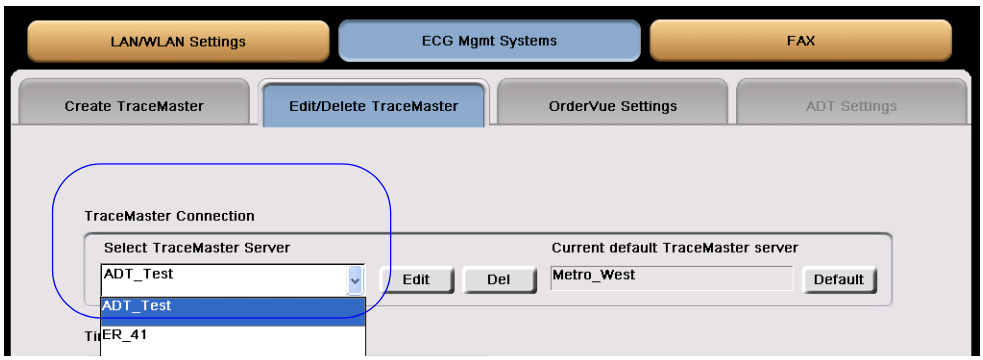
After defining one or more third party servers, you must set a default server for this cardiograph to connect to by default when transmitting ECG data from the Archive. This is the default server the cardiograph will connect to unless another server is selected from the Archive prior to transmission.

If no server is configured as the default, this field shows the text, **No default connection**.

**NOTE** Even though the Setup screens in the following procedure display **TraceMaster** or **TraceMaster Connection**, the settings are applicable to a third party ECG management system.

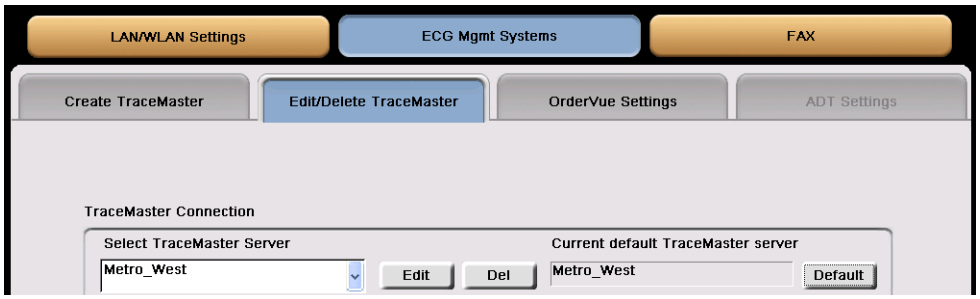
**To set the default server:**

1 On the **Edit/Delete TraceMaster Connection** screen, touch the **Select TraceMaster Server** dropdown list and select the server to set as the default.




2 Touch **Default**.

The name of the selected server now appears in the **Current default TraceMaster** field.




3 Save your changes by touching **Exit**, and, when prompted to save, touch **Yes**.

You are returned to the Configuration Setup and Service Utilities screen.

**NOTES** The **Time Synchronization Settings** are not supported for use with third party (non-Philips) ECG management systems.

You can manually set the date and time by touching **Manual Time Set**.

## Testing the Third Party Connection

Follow the procedure below to test the configured connection settings between the cardiograph and the third party server.

**NOTE** Even though the Setup screens in the following procedure display **TraceMaster** or **TraceMaster Connection**, the settings are applicable to a third party ECG management system.

**To test connection to the server:**

1 On the cardiograph toolbar, touch **Setup**.

The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **Configure ECG Network Settings**. The **Wire Network** tab appears.

3 In the **Network Test** section, type the IP address of the server to test in the **IP Address** field.

4 Touch **Ping**.

If the cardiograph can connect to the server, the test is successful and the cardiograph can transmit data to the server.

If the test fails, refer to the troubleshooting information, or consult your network administrator for further assistance.

# Editing Third Party Settings

Once configured, you can edit server settings, as well as change the default server for this cardiograph to connect to (page 6-9).

**NOTE** Even though the Setup screens in the following procedure display **TraceMaster** or **TraceMaster Connection**, the settings are applicable to a third party ECG management system.

**To change third party server settings:**

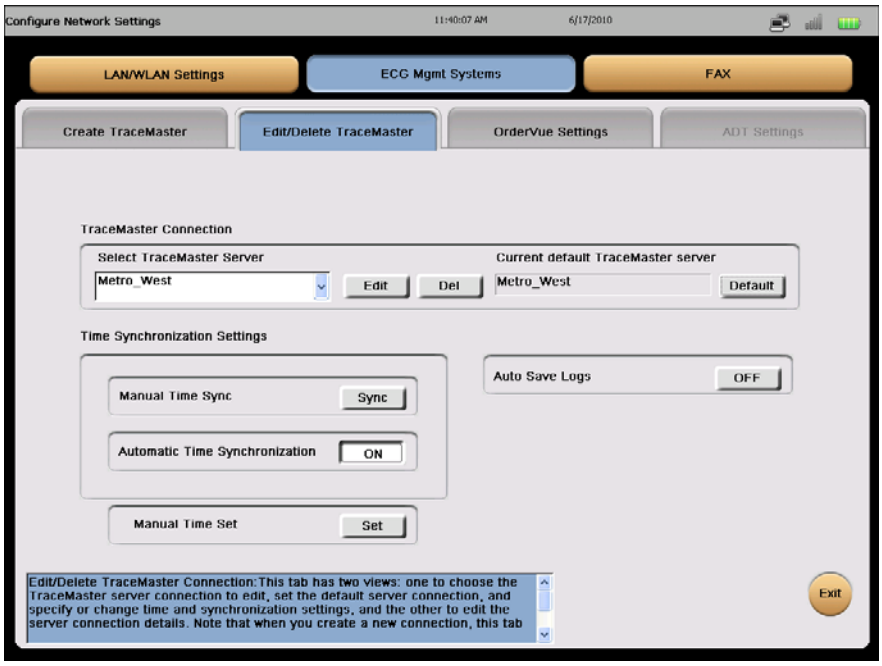
1 On the cardiograph toolbar, touch **Setup**.

The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **Configure ECG Network Settings**.

3 Touch the **ECG Mgmt Systems** button (top of screen), then touch the **Edit/Delete TraceMaster** tab.

4 In the **Select TraceMaster Server** list, touch the arrow to display the list of configured servers, then touch the desired entry to select it.




5 To change connection-related settings, touch **Edit**.

The full Edit/Delete TraceMaster Connection screen appears loaded with the settings assigned to the selected server.

6 Make changes to the settings as necessary. To change the name of the server connection, edit the **TraceMaster Server** field.

7 When finished, touch **Save Settings** to save your changes.

Once the changes are saved, the cardiograph returns you to the **Edit/Delete TraceMaster Connection** tab.

7

# Configuring FAX Settings

If you will fax ECGs from the cardiograph, you will need to define a fax recipient.

## Special Notes About Fax Transmission

**CAUTION** No guarantee is made as to the suitability of a faxed ECG for any particular purpose, due to the variability inherent in fax technology.

**CAUTION** Faxed ECGs should only be sent to secure recipient fax machines.

## Before You Begin

To ensure that fax setup proceeds smoothly and efficiently, have available all fax information, including recipient names and phone numbers prior to starting.

## Creating a Fax Recipient

Use this procedure for creating fax entries on the cardiograph.

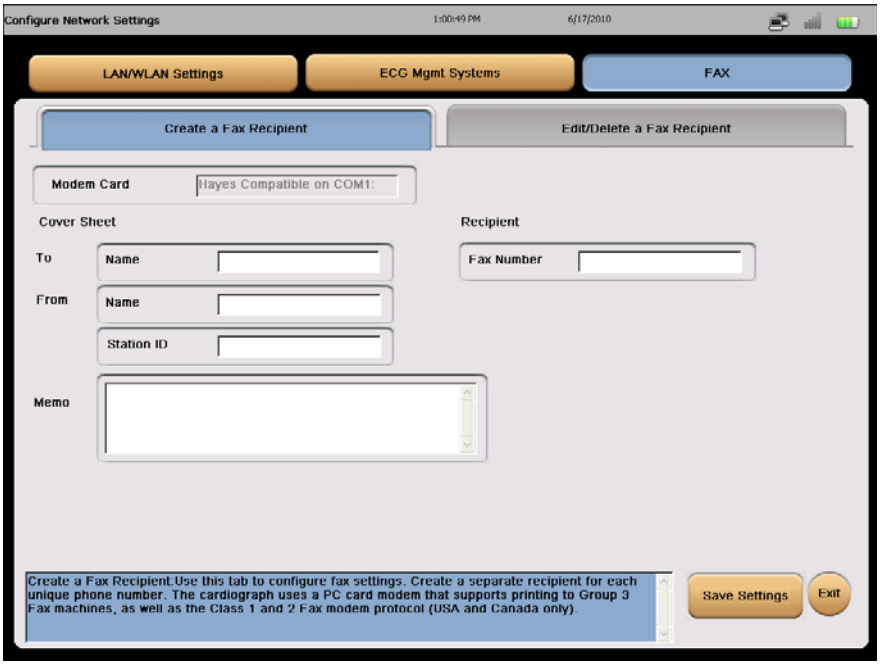
**To define a fax recipient:**

1 On the cardiograph toolbar, touch **Setup**.

The Configuration Setup and Service Utilities menu appears.

2 On the menu, touch **Configure ECG Network Settings**.

3 Touch the **FAX** button (top of screen). The **Create a Fax Recipient** tab appears.


Configure Network Settings
1:00:49 PM
6/17/2010
LAN/WLAN Settings
ECG Mgmt Systems
FAX
Create a Fax Recipient
Edit/Delete a Fax Recipient
Modem Card
Hayes Compatible on COM1:
Cover Sheet
Recipient
To
Name
Fax Number
From
Name
Station ID
Memo
Create a Fax Recipient.Use this tab to configure fax settings. Create a separate recipient for each unique phone number. The cardiograph uses a PC card modem that supports printing to Group 3 Fax machines, as well as the Class 1 and 2 Fax modem protocol (USA and Canada only).
Save Settings
Exit

**4** Define fields as follows:

| Field | Set as Follows ... |
|---|---|
| Modem Card | Read-only field showing the installed modem card. |
| Cover Sheet section | Specify cover sheet options for the fax. |
| To Name | Type the name of the fax recipient. May specify up to 40 alpha-numeric characters. |
| From Name | Type the name to use as the sender of the fax. May specify up to 40 alpha-numeric characters. |
| From Station ID | Type the Station ID. May specify up to 40 alpha-numeric characters. |
| Memo | Type any information to include on the cover sheet. The memo field can contain a maximum of 300 characters. |
| FAX number | Type the fax number to dial. You can use any format, for example, 805-224-0987 or 8052240987. |

**5** Save your settings by touching **Save Settings**.

The **Save Fax Recipient Settings** dialog box appears, prompting you to name the fax entry. The name you specify appears in the **Select Fax Recipient** list on the **Edit/Delete a Fax Recipient** tab.

**6** Type the name to identify this entry, then touch **OK**.

The Fax destination is saved.

You can edit fax recipient information at any time by using the **Edit/Delete a Fax Recipient** tab.

## Editing a Fax Recipient

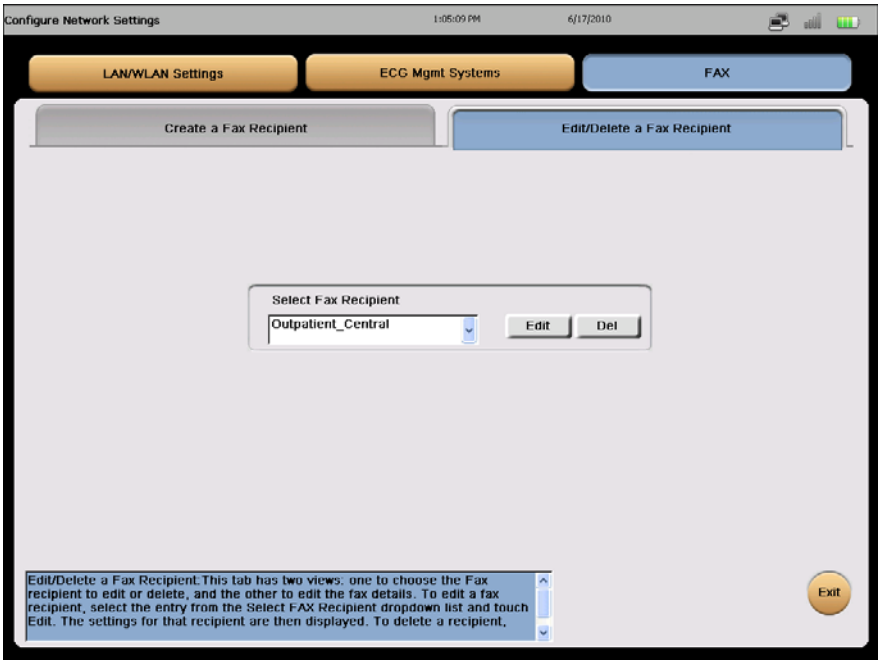
The following procedure describes how to edit a configured Fax entry.

**To edit settings for an existing Fax recipient:**

1 Follow steps 1 through 3 on page 7-1.

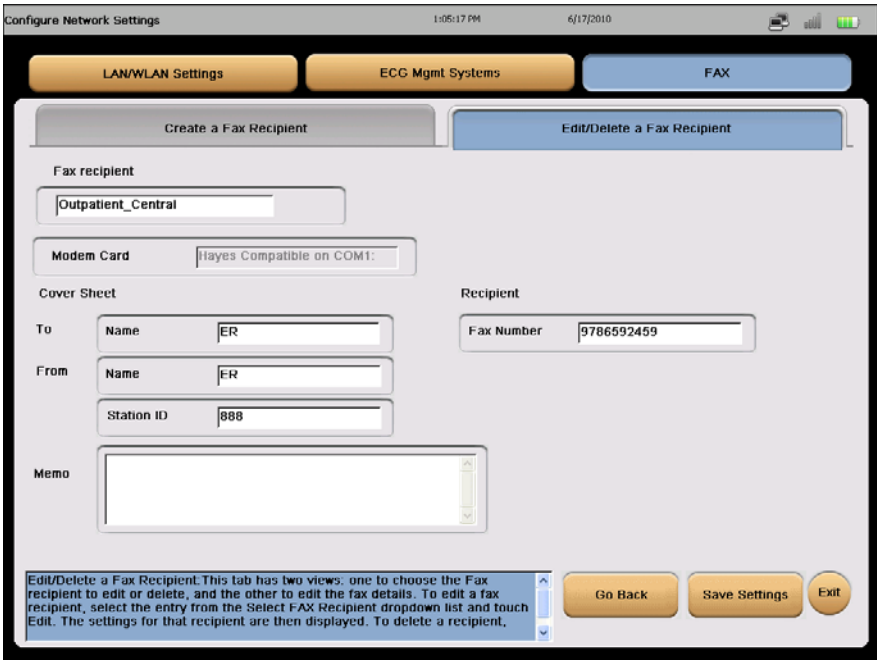
2 Touch the **Edit/Delete a Fax Recipient** tab.

The Edit/Delete a Fax Recipient screen appears.


Configure Network Settings
1:05:09 PM
6/17/2010
LAN/WLAN Settings
ECG Mgmt Systems
FAX
Create a Fax Recipient
Edit/Delete a Fax Recipient
Select Fax Recipient
Outpatient_Central
Edit
Del
Edit/Delete a Fax Recipient.This tab has two views: one to choose the Fax recipient to edit or delete, and the other to edit the fax details. To edit a fax recipient, select the entry from the Select FAX Recipient dropdown list and touch Edit. The settings for that recipient are then displayed. To delete a recipient,
Exit

3 Touch the arrow of the **Select Fax Recipient** dropdown list, and select a configured entry; then touch **Edit**.

The settings for the selected Fax entry appear on the screen.




4 Make changes as needed.

To change the fax entry name, edit the **Fax Recipient** field.

5 To save your settings, touch **Save Settings**.

You are prompted to save.

6 Touch **OK**.

The updated fax recipient settings are saved.

# 8

# Troubleshooting Communication Issues

As you configure connectivity between the PageWriter TC cardiographs and remote servers, and test each connection, you may encounter some communication problems. The following sections describe some of the more common communication issues, and each section includes solutions to help you solve various communication issues.

Follow the steps outlined in each section in the order shown.

The following suggestions assume that you have tested ECG transmission between the cardiograph and a remote server and it failed.

## Troubleshooting a Wired Connection

**Table 8-1 Troubleshooting PageWriter Cardiograph/Remote Server Communication Issues**

| What to do ... | | Next steps ... |
|---|---|---|
| **1** | Check all hardware connections. If any cables are loose, re-attach them and test transmission again. | If transmission fails, proceed to step 2. |
| **2** | Ping the server from the cardiograph.<br>Before proceeding, ensure you have the appropriate IP addresses available.<br>See “Editing TraceMaster Connection Settings” on page 3-20 (you can use this same procedure for all remote servers). | Proceed to step 3. |
| **3** | Ping the cardiograph from the server. | If *ping* fails, proceed to step 4. |
| **4** | On the cardiograph, verify the IP address, ensure that the correct IP address type is set (DHCP or static), and ensure the computer name is unique.<br>See “About Network Settings” on page 2-1. | If there was an error in either field, repeat steps 2 and 3.<br>The computer name must be unique. If multiple devices have the same name, one or more devices will not be recognized on the network.<br>If the settings were correct, proceed to step 5. |

**Table 8-1 Troubleshooting PageWriter Cardiograph/Remote Server Communication Issues** *(continued)*

| What to do ... | Next steps ... |
|---|---|
| **5** If the cardiograph connects to the server via a hub, switch, or router, disconnect it, and connect it directly to the remote server server hub. | Once directly connected, repeat steps 2 and 3.<br>If the ping is successful when directly connected, the problem is most likely in the network switch or router the cardiograph was originally connected through. Contact the site's network administrator to determine the LAN port ethernet settings (see step 6).<br>If transmission still fails, contact the Philips Response Center. |
| **6** Contact the hospital network administrator to determine the LAN port Ethernet settings (speed and duplex). For proper communication, the port must be configured to one of the following three settings:<br>– Auto Negotiate<br>– 100 Mbps Full Duplex<br>– 10 Mbps Half Duplex<br>See "About Auto Negotiation" on page 2-3. | If *ping* fails with the LAN port set to any of these settings, it might be necessary to lock down the cardiograph to a specific setting combination. |

# Troubleshooting a Wireless Connection

All wireless LAN troubleshooting topics are included in this section.

**Table 8-1 Wireless LAN Troubleshooting**

| Symptom | Possible Cause & Investigation Step | Possible Solutions |
|---|---|---|
| **LAN/WLAN connection is not available** message | The network connection has been broken. | Contact your IT department. |
| **Invalid IP Address** message | Incorrect IP address specified for the server connection. | **1** Check the cardiograph's server configuration settings. Touch the **Setup** button on the main toolbar to access the server settings.<br>**2** Contact your server administrator for information. |

**Table 8-1 Wireless LAN Troubleshooting**

| Symptom | Possible Cause & Investigation Step | Possible Solutions |
|---|---|---|
| **Invalid Subnet Mask** message | Incorrect subnet mask specified in the cardiograph's server configuration. | **1** Check the cardiograph's server configuration settings. Touch the **Setup** button on the main toolbar to access the server settings.<br>**2** Contact your server administrator for information. |
| **Invalid Default Gateway** message | Incorrect default gateway specified in the cardiograph's server configuration. | **1** Check the cardiograph's server configuration settings. Touch the **Setup** button on the main toolbar to access the server settings.<br>**2** Contact your server administrator for information. |
| **Invalid Primary WINS** message | Incorrect Primary WINS specified in the cardiograph's server configuration. | **1** Check the cardiograph's server configuration settings. Touch the **Setup** button on the main toolbar to access the server settings.<br>**2** Contact your server administrator for information. |
| **Invalid Primary DNS** message | Incorrect Primary DNS specified in the cardiograph's server configuration. | **1** Check the cardiograph's server configuration settings. Touch the **Setup** button on the main toolbar to access the server settings.<br>**2** Contact your server administrator for information. |
| **Invalid directory** message | Incorrect directory specified in the cardiograph's server configuration. | **1** Check the cardiograph's server configuration settings. Touch the **Setup** button on the main toolbar to access the server settings.<br>**2** Contact your server administrator for information. |
| General wireless connectivity issues; unpredictable connectivity | The wireless infrastructure is not a Cisco system, and the **CCX Features** setting in the Summit Client Utility (SCU) is set to **Optimized** | **1** Open the Summit Client Utility (SCU) and change the **CCX Features** setting to **OFF** if the wireless infrastructure is not a Cisco system. For information, see "Configuring Wireless Adapter Settings" on page 2-19.<br>**2** Contact your system administrator for more information. |

# Additional Troubleshooting Information

The following tables list communication issues you may have with TraceMaster, OrderVue, or other third party (non-Philips) ECG management system, or Archive operations.

## TraceMaster ECG Management System Issues

**Table 8-2 TraceMaster ECG Management System Troubleshooting**

| Symptom | Possible Cause & Investigation Step | Possible Solutions |
|---|---|---|
| **Error. The lead system used to generate this ECG is not supported on the cardiograph. Please print ECG directly from TraceMaster.** message | ECG XML version is incompatible | Print the ECG from TraceMaster. |
| **Error. The ECG originated from a legacy TraceMaster system and cannot be printed. Please print ECG directly from TraceMaste**r. message | ECG XML version is incompatible | Print the ECG from TraceMaster. |
| **The Patient ID field must be enabled in order to transfer ECGs to TraceMaster. Touch the [ON] button underneath the "Enabled" column to activate the Patient ID field**. message | You attempted to transfer an ECG without a Patient ID to TraceMaster. | **1** Follow the on screen instructions to enter a Patient ID.<br>**2** Retry the transfer operation. |
| **Required patient information is missing from the current ECG** message | You attempted to transfer an ECG without the required information to TraceMaster. | Enter the required information and attempt the operation again. |

**Table 8-2 TraceMaster ECG Management System Troubleshooting** *(continued)*

| Symptom | Possible Cause & Investigation Step | Possible Solutions |
|---|---|---|
| **There are no TraceMaster connections configured for use. Please go to Setup and add a TraceMaster connection.** message | You attempted to access a TraceMaster server and no connection has been configured. | **1** Check the cardiograph's TraceMaster configuration settings and ensure a valid TraceMaster server is configured.<br>**2** Check the cardiograph's LAN/WLAN configuration settings. Touch the **Setup** button on the main toolbar to access the TraceMaster LAN and WLAN settings. |
| **There is no TraceMaster server selected as the default configuration. Please go to Setup and select a default TraceMaster connection.** message | You did not configure a default TraceMaster server. | **1** Check the cardiograph's TraceMaster configuration settings and ensure a valid TraceMaster server is configured as the default TraceMaster server.<br>**2** Check the cardiograph's LAN/WLAN configuration settings. Touch the **Setup** button on the main toolbar to access the TraceMaster LAN and WLAN settings. |
| **Invalid transfer destination is selected** message | You selected an invalid TraceMaster server. | **1** Check the cardiograph's TraceMaster configuration.<br>**2** Check the cardiograph's LAN/WLAN settings. Touch the **Setup** button on the main toolbar to access the TraceMaster LAN and WLAN settings. |
| **The XML version associated with this ECG is not supported by TraceMaster** message | ECG XML version is incompatible | **1** Check the cardiograph's TraceMaster configuration settings and ensure the correct TraceMaster server version is selected.<br>**2** Check the cardiograph's LAN/WLAN configuration settings. Touch the **Setup** button on the main toolbar to access the TraceMaster LAN and WLAN settings. |
| **There is no TraceMaster server to delete** message | You attempted to delete a TraceMaster server without first selecting one. | **1** Select the TraceMaster server to delete.<br>**2** Delete the TraceMaster server. |
| **Missing network settings information. Please enter correct and complete network settings.** message | You attempted to configure a TraceMaster without specifying all of the correct information. | **1** Check the cardiograph's TraceMaster configuration settings and ensure that all of the necessary information has been entered.<br>**2** Check the cardiograph's LAN/WLAN configuration settings. Touch the **Setup** button on the main toolbar to access the TraceMaster LAN and WLAN settings. |

## OrderVue Issues

**Table 8-3 OrderVue Troubleshooting Issues**

| Symptom | Possible Cause & Investigation Step | Possible Solutions |
|---|---|---|
| **Command cannot be completed** message | The server is busy. | Retry operation.<br>Transfer operations use network and server resource, which may occasionally be unable to service the requests. |
| **Command canceled** message | You canceled the action or specified invalid information. | Check the information specified and try again. |
| **Internal error** message | The orders or patient demographics list does not refresh. | Retry the operation. |
| **There is not enough internal storage available to save new orders** message | Application limitation | Delete unwanted orders. |
| **There is not enough internal storage available to download new orders** message | Application limitation | Delete unwanted orders. |
| **Not all orders can be downloaded because the Worklist is full** message | Application limitation | Delete unwanted orders. |
| **Orders cannot be downloaded because they have been previously archived with ECGs. Please check ECGs saved to the Main Archive.** message | Order or patient demographics specified for download are already associated with an ECG that is currently saved to the cardiograph internal Main Archive. | Transmit completed ECGs to the TraceMaster server, or check the order or patient demographic is not a duplicate. |

**Table 8-3 OrderVue Troubleshooting Issues**

| Symptom | Possible Cause & Investigation Step | Possible Solutions |
|---|---|---|
| **Invalid default TraceMaster connection for selected OrderVue inbox. Please select the correct TraceMaster connection for the inbox.** message | Incorrect server specified in the configuration. | **1** Check the cardiograph's server configuration settings.<br>**2** Check the cardiograph's LAN/WLAN configuration settings. Touch the **Setup** button on the main toolbar to access the LAN and WLAN settings. |
| **Order Error: Requested function failed** message | Order or patient demographic application error | **1** Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**2** Repeat the order or patient demographic procedure that generated the error message. If the error persists, record the date and time of the error, and export the log files. For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**3** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |
| **Order Error: XML error** message | XML order error | **1** Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**2** If the error persists, export the log files. For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**3** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |
| **Orders number reached the limit of 200. Not all of the new orders were appended.** message | Application limitation | **1** Delete unwanted orders or patient demographics.<br>**2** Refine your search criteria. |

**Table 8-3 OrderVue Troubleshooting Issues**

| Symptom | Possible Cause & Investigation Step | Possible Solutions |
|---|---|---|
| **The connection to the server was reset** message | The network connection was broken during an orders or patient demographics operation. | 1 Retry the operation.<br>2 Contact your IT department to report the network is down. |
| **No order source selected** message | You attempted to get an order or patient demographic without specifying a source. | Specify the source and retry the operation. |
| **Please select at least one order** message | You touched the **ECG** button without selecting an order or patient demographic. | 1 Select an order.<br>2 Touch the **ECG** button. |
| **Are you sure you want to delete the selected order(s)?** message | You attempted to delete an order or patient demographic. | Check to make sure that you want to delete the selected order or patient demographic. If so, confirm the operation. If not, cancel the operation. |
| **Selection exceeds maximum number of outboxes. Select no more than 24 outboxes.** message | Application limitation | Select fewer outboxes and retry the operation. |
| **The Order Search Range cannot be left empty. Please enter a number between 0 and 99.** message | You attempted to search for an order or patient demographic without specifying the search range. | Specify a search range and retry the operation. |

## TraceMaster Remote Query Issues

**Table 8-4 TraceMaster Remote Query Issues**

| Symptom | Possible Cause & Investigation Step | Possible Solutions |
|---|---|---|
| **Remote Query could not be completed** message | XML application was not successfully created due to a lack of system resources. | 1 Retry the operation.<br>2 Restart the cardiograph. See “Restarting the Cardiograph” on page 8-16. |

**Table 8-4 TraceMaster Remote Query Issues**

| Symptom | Possible Cause & Investigation Step | Possible Solutions |
|---|---|---|
| **Remote Query get list error** message | TraceMaster returned the wrong ECG list. | **1** Check the cardiograph's TraceMaster configuration settings.<br>**2** Check the cardiograph's LAN/WLAN configuration settings.<br>**3** Retry the operation. |
| **Remote Query get ECG error** message | TraceMaster returned the wrong ECG file. | **1** Check the cardiograph's TraceMaster configuration settings.<br>**2** Check the cardiograph's LAN/WLAN configuration settings.<br>**3** Check to see if the TraceMaster server is up and running. |
| **Remote transfer error appears** message | Unknown transfer error including no reply and unexpected reply. | **1** Check the cardiograph's TraceMaster configuration settings.<br>**2** Check the cardiograph's LAN/WLAN configuration settings.<br>**3** Retry the operation. |
| **No reply received from server** message | ■ The LAN connection may have been disconnected during the transfer operation.<br>■ Server may be down. | **1** Check the LAN connection.<br>**2** Check to see if the TraceMaster server is up and running. |
| **Unexpected reply received from server** message | Server may be down. | **1** Check the LAN connection.<br>**2** Check to see if the TraceMaster server is up and running. |
| **Remote transfer schema error** message | The XML schema is not supported for the selected TraceMaster server. | Check the TraceMaster Server Version in the cardiograph's TraceMaster configuration settings. |

**Table 8-4 TraceMaster Remote Query Issues**

| Symptom | Possible Cause & Investigation Step | Possible Solutions |
|---|---|---|
| **No matching ECG is found on the selected server** message | ■ The Patient ID may be incorrect.<br>■ The ECG you are looking for does not exist on the selected server. | **1** Check the Patient ID.<br>**2** Check to see if there is an ECG with the same Patient ID. |

## Archive Screen Issues

**Table 8-5 Archive Screen Troubleshooting Issues**

| Symptom | Possible Cause & Investigation Step | Solution |
|---|---|---|
| **Command timed-out** message | The remote server is busy. | Retry server operation.<br>Transfer operations use network and server resources, which may occasionally be unable to service the requests. |
| **ECGs with incomplete required patient information fields cannot be transferred** message | The required information for the ECG has not been entered. | Enter the required ECG information and try the archive operation again. For more information see Chapter 3 “The Patient Session” of the *PageWriter TC Cardiograph Instructions for Use*. |
| **Selected ECG(s) exceeds available space on TraceMaster Remote site** message | The server is out of available disk space. | Contact the system administrator and report the error. |

**Table 8-5 Archive Screen Troubleshooting Issues**

| Symptom | Possible Cause & Investigation Step | Solution |
|---|---|---|
| **Requested Function could not be completed** message | Network or modem phone line was interrupted during operation. | **1** Retry operation.<br>**2** Inspect cabling to network or analog phone line.<br>**3** Transfer or query operations require reliable access to the network transport. |
| | USB memory stick was not fully inserted into the slot on the cardiograph. | **1** Verify that the USB memory stick is inserted correctly. Attempting to save ECGs to USB memory stick that is not accessible will result in an error message.<br>**2** Retry the operation with fully functioning USB memory stick that is fully inserted into the USB slot on the cardiograph. |
| | An attempt to transfer an unsupported ECG report type was made to the server. | Inspect ECG that failed the requested operation for selected format (report type).<br>Certain ECG report types are not supported by and will be rejected by the server. |
| **Insufficient storage available** message appears when you are attempting to transfer files to the USB memory stick. | There is not enough space on the USB memory stick. | **1** Check the USB memory stick storage capacity.<br>**2** Free up space on the USB memory stick by deleting files and retry the operation. |
| **Invalid database** message | Archive database may be corrupted. | **1** Restart the cardiograph. See “Restarting the Cardiograph” on page 8-16.<br>**2** Wait 2 minutes and perform full software installation. For information on installing cardiograph software, see the *PageWriter TC Cardiograph Service Manual*, available for download from the Philips InCenter site, see “Using the Philips InCenter Site” on page 1-8.<br>**3** If the problem persists, contact the nearest Philips Response Center, see “Contacting a Philips Response Center” on page 1-10. |

**Table 8-5 Archive Screen Troubleshooting Issues**

| Symptom | Possible Cause & Investigation Step | Solution |
|---|---|---|
| When an error occurs during transfer of multiple ECGs to a server, the transfer process does not continue and transferred files are not deleted. | Application limitation | The PageWriter TC cardiograph ECG transfer operations fail in a known safe manner when multiple ECG transfer operations are interrupted.<br>Retry the transfer for the remaining ECGs. |
| After pressing the **Archive** button, it takes longer than 40 seconds before the Archive list is displayed when the Main Archive has more than 130 ECGs stored. | System slow-down from full ECG database | Save or delete ECGs from the Main Archive.<br>There is a known system performance impact when the near maximum number of ECGs have been stored in the Main Archive. |
| Transfer of ECGs to a USB memory stick fails and there are still less than 200 ECGs on the removable media device. | ■ USB memory stick file system limitation<br>■ Not enough free space available on the USB memory stick to save the number of selected ECGs | Delete unwanted files from the USB memory stick. |
| **No reply received from TraceMaster Remote site** message | ■ The server is unavailable<br>■ Configuration error | **1** Contact the server administrator and report the error.<br>**2** Check the IP address and the server URL in the configuration settings. |
| **Archive function could not be completed. Please restart cardiograph and try again.** message | Archive error | **1** Restart the cardiograph. See “Restarting the Cardiograph” on page 8-16.<br>**2** For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see “Using the Philips InCenter Site” on page 1-8.<br>**3** Contact the nearest Philips Response Center for further assistance, see “Contacting a Philips Response Center” on page 1-10. |

**Table 8-5 Archive Screen Troubleshooting Issues**

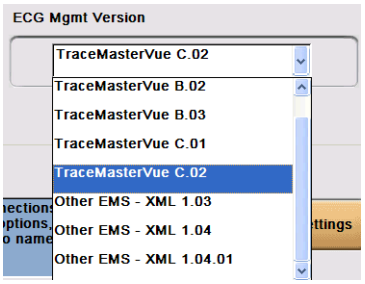
| Symptom | Possible Cause & Investigation Step | Solution |
|---|---|---|
| **Archive process was terminated due to an error** message | Archive error | **1** Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**2** For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**3** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |
| **Bad reply received from TraceMaster Remote site** message | Archive error, bad reply from server | **1** Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**2** Contact the server administrator and report the error. |
| **Unexpected reply received from TraceMaster Remote Site** message | Archive error, unexpected reply from server | **1** Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**2** Contact the server administrator and report the error. |
| **Invalid XML schema version** message | Archive error, unsupported XML schema | ▶ Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16. |
| **Unsupported XML version** message | XML schema of selected ECG is not supported by the server. | **1** Check the server configuration settings screens to ensure that the correct TraceMaster server version or correct XML version is selected.<br>**2** Check that the selected algorithm version is supported by the selected TraceMasterVue server version or XML schema version, see Table 3-1 on page 3-3.<br>**3** Custom lead configurations are not supported.<br>  |

**Table 8-5 Archive Screen Troubleshooting Issues**

| Symptom | Possible Cause & Investigation Step | Solution |
|---|---|---|
| **XML error** message | XML ECG file corrupted | **1** Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**2** For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**3** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |
| **XML unicode encoding is not UTF-16** message | Invalid encoding | **1** Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**2** For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**3** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |
| **Error accessing external XML file** message | File I/O error | **1** Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**2** For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**3** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |
| **Error XML file is too large** message | File is too large | **1** Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**2** For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**3** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |

**Table 8-5 Archive Screen Troubleshooting Issues**

| Symptom | Possible Cause & Investigation Step | Solution |
|---|---|---|
| **Error XML file did not transform** message | File I/O error | **1** Restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**2** For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**3** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |
| **Fax transmission did not complete** message | Fax not completed | **1** Retry the fax operation.<br>**2** For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**3** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |
| **There is no default TraceMaster server available for Auto Time Sync** message | Server settings are not configured correctly. | **1** Check the server configuration settings on the cardiograph.<br>**2** Touch the **Setup** button on the main toolbar to access the server settings screen. |
| Some ECGs retrieved from TraceMaster and printed on the cardiograph look different from TraceMaster prints or XLi printouts. | Older or non-PageWriter TC source ECG files were retrieved. ECG was not created by a PageWriter TC cardiograph. | Inspect the printed report date and information<br>Retrieving and printing older ECG files that were not sourced by the PageWriter TC cardiograph can have the following differences when printed:<br>■ Algorithm version appears as HPxxx on TraceMaster and PH on PageWriter TC cardiograph.<br>■ Pacer tick marks are not present on PageWriter TC cardiograph printout.<br>■ Frank lead system generates 3 rhythm traces with flat line and no lead label on PageWriter TC cardiograph printout.<br>■ Custom lead names do not appear on PageWriter TC cardiograph printout.<br>■ PageWriter TC cardiograph prints full interpretations regardless of original Xli ECG settings. |

**Table 8-5 Archive Screen Troubleshooting Issues**

| Symptom | Possible Cause & Investigation Step | Solution |
|---|---|---|
| **Error occurred when deleting the selected ECGs. Please check the Error List below** message | Internal Compact Flash card read/write error | **1** Retry the operation.<br>**2** If the problem persists, restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**3** If the issue is still not resolved, save the log files. For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**4** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |
| **Error occurred when transferring the selected ECGs. Please check the Error List below for more details.** message | Transmission error | **1** Retry the operation.<br>**2** If the problem persists, restart the cardiograph. See "Restarting the Cardiograph" on page 8-16.<br>**3** If the issue is still not resolved, save the log files. For information on using the Log Files, see the *PageWriter TC Cardiograph Service Manual*, available on the Philips InCenter site, see "Using the Philips InCenter Site" on page 1-8.<br>**4** Contact the nearest Philips Response Center for further assistance, see "Contacting a Philips Response Center" on page 1-10. |
| **Do you want to overwrite the existing patient information with the selected order** message | You attempted to use an order to overwrite patient information of an archived ECG. | Check to make sure that you want to overwrite the information. If so, confirm the operation. If not, cancel the operation. |

# Restarting the Cardiograph

**To restart the cardiograph:**

1. Press and hold the **On/Standby** button ( ) for 2-3 seconds to shut down the cardiograph.
2. Press the **On/Standby** button again to power on the cardiograph.

**3** If steps 1 and 2 do not work, press the restart button (rear of cardiograph), see Figure 8-1 and Figure 8-2.

After approximately 20 seconds, the PageWriter TC cardiograph software identification screen appears, followed by an audible beep.

**Figure 8-1 Pressing the Restart button on the PageWriter TC50 or PageWriter TC30 Cardiograph (apply gentle pressure only)**

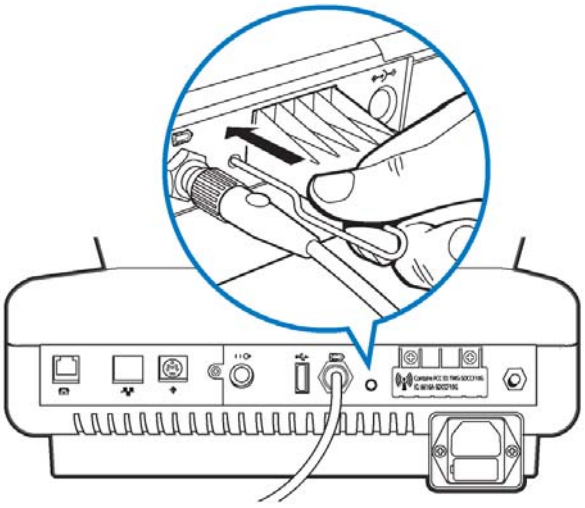
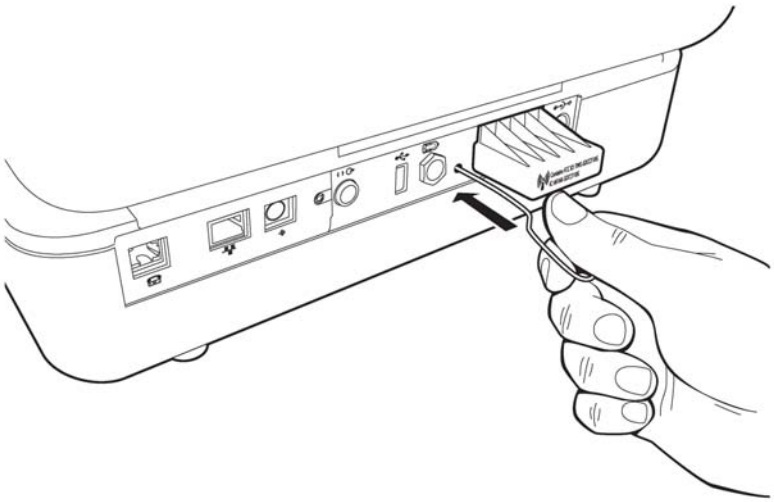


**Figure 8-2 Pressing the Restart button on the PageWriter TC70 Cardiograph (apply gentle pressure only)**



**4** If steps 1,2, and 3 do not work, remove the batteries and the AC power from the cardiograph.

**5** Reapply power and repeat steps 1 through 3.

6 If steps 1,2, and 3 do not work, remove the batteries and the AC power from the cardiograph.

7 Reapply power and repeat steps 1 through 3.

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